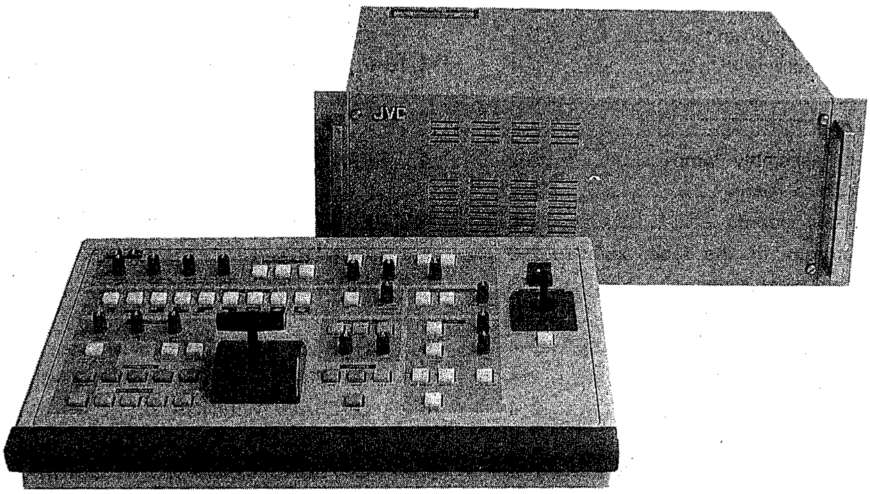
JVC Service Manual



MODEL KM-D600

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TABLE OF CONTENTS

Section Title Page

Important Safety Precations
INSTRUCTIONS

1. CIRCUIT DESCRIPTION 1-1
1.1 COMPOSITION OF CIRCUIT BOARDS 1-1
1.2 PRIMARY FUNCTION OF EACH CIRCUIT BOARD . 1-1
  1.2.1 VIDEO board 1-1
  1.2.2 KEY board 1-2
  1.2.3-N Y/C SEPA board(NTSC) 1-3
  1.2.3-P Y/C SEPA board(PAL) 1-3
  1.2.4 TBC board 1-4
  1.2.5 EFF TBC board 1-5
  1.2.6 SG/CPU board 1-5
  1.2.7 MT board 1-6
  1.2.8 CC board 1-6
  1.2.9 CTL board 1-6
  1.2.10 PS unit 1-6

2. DISASSEMBLY 2-1
2.1 FUSE REPLACEMENT 2-1
  2.1.1 Fuse inside the control unit 2-1
  2.1.2 Fuse inside the main unit 2-1
2.2 CONTROL UNIT 2-1
  2.2.1 Removal of knob 2-1
  2.2.2 Replacement of assembly lamp 2-2
  2.2.3 Opening the control panel 2-2
  2.2.4 Location of circuit boards 2-2
  2.2.5 Adjusting the torque of the fader lever 2-2
  2.2.6 Removval of the fader lever 2-3
  2.2.7 Removal of the fader lever VR 2-3
  2.2.8 Attaching of the fader lever VR 2-4
2.3 MAIN UNIT 2-4
  2.3.1 Removal of the front cover 2-4
  2.3.2 Removal of the top cover 2-4
  2.3.3 Removal of the rear panel assembly 2-4
  2.3.4 Removal of the plug-in circuit boards 2-5
  2.3.5 Removal of the PS unit 2-5
2.4 INNER CONNECTORS AND SWITCHES 2-5
  2.4.1 VIDEO board(main unit) 2-5
  2.4.2 KEY board(main unit) 2-5
  2.4.3 SG/CPU board(main unit) 2-5
  2.4.4 EFF TBC, TBC board(main unit) 2-6
  2.4.5 CC board(control unit) 2-6
2.5 1600 MODE AND D600 MODE 2-7

3. ADJUSTMENT PROCEDURE 3-1
3.1 FLOWCHART OF ELECTRICAL ADJUSTMENT 3-1
3.2 REQUIRED EQUIPMENT AND STANDARD SETUP FOR ELECTRICAL ADJUSTMENT 3-2
  3.2.1 Necessary equipment and instruments 3-2
  3.2.2 Standard setup and connection 3-2
  3.2.3 Test signals necessary for adjustment 3-3
3.3 BEFORE ADJUSTMENT 3-4
3.4 ADJUSTMENT OF POWER SUPPLY VOLTAGE 3-11
3.5 ADJUSTMENT OF SSG FREQUENCY 3-11
3.6 ADJUSTMENT OF REFERENCE DC VOLTAGE 3-13
3.7 ADJUSTMENT OF DSK ENCODER(1) 3-15
3.8 ADJUSTMENT OF VIDEO SIGNAL LEVEL 3-18
3.9 ADJUSTMENT OF BUILT-IN COLOR BARS SIGNAL 3-25
3.10 ADJUSTMENT OF BACK COLOR SIGNAL 3-27
3.11 ADJUSTMENT OF CHROMA PHASE 3-28
3.12 ADJUSTMENT OF DSK ENCODER(2) 3-29
3.13 ADJUSTMENT OF CHROMA KEY ENCODER 3-30
3.14 ADJUSTMENT OF EFF TBC BOARD 3-32
3.15 ADJUSTMENT OF TBC BOARD 3-37
3.16-N ADJUSTMENT OF Y/C SEPARATOR (U version) 3-42
3.17 ADJUSTMENT OF Y/C TIMING 3-46
3.18 ADJUSTMENT OF B.B.(BLACK BURST)SIGNAL ... 3-47
3.19 ADJUSTMENT OF WIPE PATTEREN WAVEFORM 3-48
3.20 ADJUSTMENT OF MIX DC VOLTAGE 3-53
3.21 CONFIRMATION OF DOC(DROPOUT COMPENSATION)CIRCUIT 3-54
3.16-P ADJUSTMENT OF Y/C SEPARATOR (E version) 3-42P

4. REPACKING 4-1

5. EXPLODED VIEWS AND PARTS LIST 5-1
5.1 CONTROL UNIT ASSEMBLY 5-1
5.2 MAIN UNIT ASSEMBLY 5-3

6. CHARTS AND DIAGRAMS 6-1
6.1 MT, BN, D-SUB, TALLY, RELAY CIRCUIT BOARDS . 6-2
6.2 OVERALL WIRINGS 6-3
6.3 CC CIRCUIT BOARD 6-4
6.4 CC BOARD SCHEMATIC DIAGRAM 6-5
6.5 CTL CIRCUIT BOARD 6-6
6.6 CTL BOARD SCHEMATIC DIAGRAM 6-7
6.7 CBMs ON THE VIDEO BOARD 6-8
6.8 VIDEO CIRCUIT BOARD 6-9
6.9 VIDEO BOARD SCHEMATIC DIAGRAM 6-10
6.10 CBMs ON THE KEY BOARD 6-11
6.11 KEY CIRCUIT BOARD 6-12
6.12 KEY BOARD SCHEMATIC DIAGRAM 6-13
6.13-N Y/C SEPA CIRCUIT BOARD(NTSC) 6-14
6.14-N Y/C SEPA BOARD SCHEMATIC DIAGRAM(NTSC) 6-15
6.13-P Y/C SEPA CIRCUIT BOARD(PAL) 6-16
6.14-P Y/C SEPA BOARD SCHEMATIC DIAGRAM(PAL) 6-17
6.15 SG/CPU CIRCUIT BOARD 6-18
6.16 SG/CPU BOARD SCHEMATIC DIAGRAM-1 6-19
6.17 SG/CPU BOARD SCHEMATIC DIAGRAM-2 6-20
6.18 CBMs ON THE SG/CPU BOARD 6-21
6.19 EFF TBC CIRCUIT BOARD 6-22
6.20 EFF TBC BOARD SCHEMATIC DIAGRAM-1 6-23

Section Title Page

6.21 EFF TBC BOARD SCHEMATIC DIAGRAM-2 6-24
6.22 EFF TBC BOARD SCHEMATIC DIAGRAM-3 6-25
6.23 EFF TBC BOARD SCHEMATIC DIAGRAM-4 6-26
6.24 TBC CIRCUIT BOARD 6-27
6.25 TBC BOARD SCHEMATIC DIAGRAM-1 6-28
6.26 TBC BOARD SCHEMATIC DIAGRAM-2 6-29
6.27 TBC BOARD SCHEMATIC DIAGRAM-3 6-30
6.28 PS UNIT OF THE CONTROL UNIT 6-31
6.29 PS UNIT CIRCUIT BOARD OF THE MAIN UNIT .6-32
6.30 PS UNIT SCHEMATIC DIAGRAM OF THE MAIN UNIT 6-33
6.31 PS UNIT SCHEMATIC DIAGRAM OF THE MAIN UNIT 6-34
6.32 BLOCK DIAGRAMS OF PRINCIPLE ICs 6-35

7. ELECTRICAL PARTS LIST 7-1
7.1 MT(MOTHER) BOARD ASSEMBLY LIST 7-2
7.2 BNC BOARD ASSEMBLY LIST 7-2
7.3 TALLY BOARD ASSEMBLY LIST 7-2
7.4 RELAY BOARD ASSEMBLY LIST 7-2
7.5 Y/C OUT BOARD ASSEMBLY LIST 7-2
7.6 CC(CONTROL CPU) BOARD ASSEMBLY LIST 7-3
7.7 CTL BOARD ASSEMBLY LIST 7-4
7.8 VIDEO BOARD ASSEMBLY LIST 7-6
7.9 KEY BOARD ASSEMBLY LIST 7-15
7.10-N Y/C/SEPA BOARD ASSEMBLY LIST FOR U VERSION 7-25
7.11 SG/CPU BOARD ASSEMBLY LIST 7-30
7.12 EFF TBC BOARD ASSEMBLY LIST 7-35
7.13 TBC BOARD ASSEMBLY LIST 7-43
7.14 PS UNIT BOARD ASSEMBLY LIST (CONTROL UNIT) 7-50
7.15 PS UNIT BOARD ASSEMBLY LIST (MAIN UNIT) 7-50
7.10-P Y/C/ SEPA BOARD ASSEMBLY LIST FOR E VERSION 7-53

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

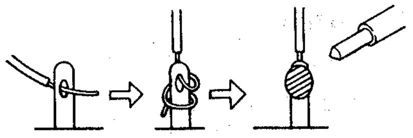


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

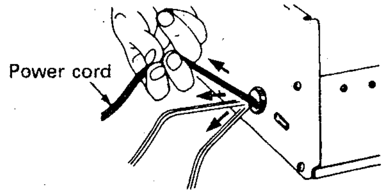


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

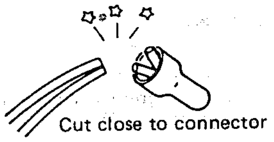


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

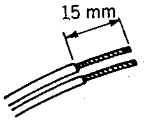


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

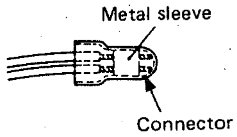


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

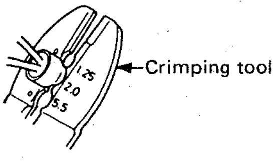


Fig. 6

(5) Check the four points noted in Fig. 7.

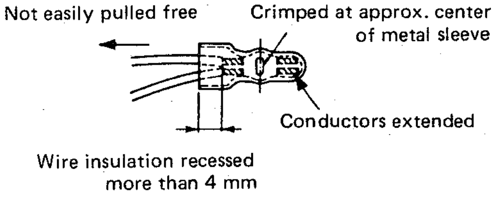

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

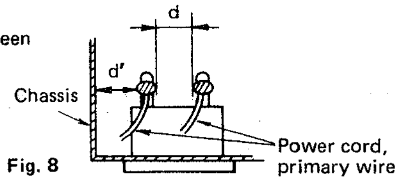


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

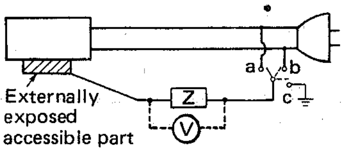


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

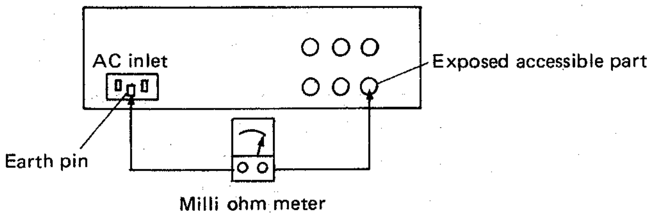


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

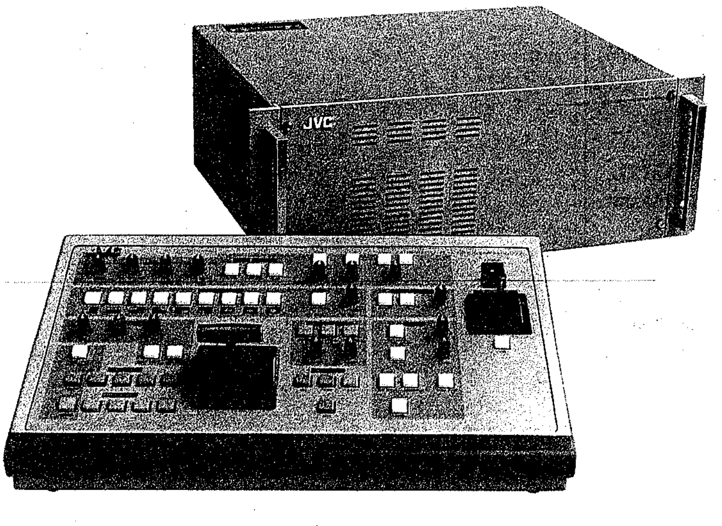
Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC **Instructions**

Y/C DIGITAL EFFECTS GENERATOR

KM-D600

The Y/C signal referred to in this instruction manual is Y/C358 (U version) and Y/C443 (E version) unless otherwise specified.



For Customer Use:

Enter below the Serial No. which is located on the rear panel. Retain this information for future reference.

Model No. KM-D600

Serial No.

WARNING

Due to disign modifications, the servicing procedures and data given in this manual are subject to possible change without prior notice.

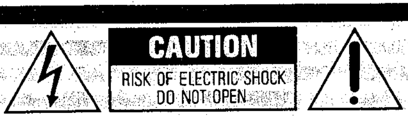
WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

AVERTISSMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

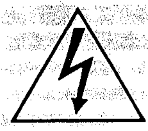
Warning Notice
FOR YOUR SAFETY

To ensure safe operation the three-pin plug supplied must be inserted only into a standard three-pin power point which is effectively grounded through the normal hausehold wiring.
Extension cords used with the equipment must be three core and be correctly wired to provide connection to earth ground. Wrongly wired extension cords are a major cause of fatalities.
The face that the equipment operates satisfactorily does not imply that the power point is properly grounded and that the intallation is completely safe. For your safety, if in any doubt about the correct grounding of the power point, consult a qualified electrician.

For U version



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangel, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product"s enclosure that may be of sufficient magnitude to consitute a risk of electric shock to persosn.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Information for Canada

This Product comples with D.O.C. limits (C.R.C., C.1374) pertaining to class B digital apparatus.

Renseignement pour Canada

Ce produit est conforme aux normes du M.D.C. (C.R.C., ch.1374) s'appliquant aux appareils numériques de classe B.

Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

For E version

WARNINT – THIS APPLIANCE MUST BE EARTHED
IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW:	EARTH
BLUE:	NEUTRAL
BROWN:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

Thank you for purchasing the JVC KM-D600 Y/C Digital Effects Generator.

To utilize this product to its fullest, please read this instruction booklet carefully and entirely for the best understanding of its capabilities and operation.

CONTENTS

Features 2
Precautions 2

Controls, Connectors and Indicators
Control unit: Control panel 3
Control unit: Rear panel 5
Main unit 6

Installation
Installing the control unit in a control console 8
Installing the main unit in a rack 8

Connections
Connecting the control unit to the main unit 9
Connecting to VTRs, monitors, and editing controllers 10
Connecting to keying cameras 11

Preparations (System Adjustments)
Phase adjustment 12
Video level and color adjustment (Simplified method) 12
Video level and color adjustment (Using built-in color bars) 13

Operation
Power ON/OFF 14
Input selection 14
Available effects 15
Quick guide to effects 16
Background effects (Replacing the PROGRAM bus signal with the PRESET/KEY bus signal) 20
Keying effects 24
Keying in a title 25
Chroma keys (Synthesizing a person and a landscape) 31
Pattern keys (Fitting a pattern-cut image into a background picture) 32
DSK (Downstream keyer) titling 39
Wipe pattern selection and softness effect 40
Setting the transition time 40
Adjusting color signals 41
Reverse, strobe, mosaic, and paint effects 41
Masking 42
Other Functions 43
Specifications 44

The Y/C signal referred to in this instruction manual is Y/C358 (U version) and Y/C443 (E version) unless otherwise specified.

FEATURES

- Built-in dual-channel TBC
- Digital effects (freeze, strobe, mosaic, slide, paint, negative, and compression)
- Y/C and composite signals can be input.
- Y = 8 bits, C = 8 bits 4:1:1 component process
- DOC and ADVANCED SYNC for VTR
- Built-in full-field color bars generator
- Auto and manual transition
- Soft wipe
- Positioner wipe
- GPI control for connection with VTR controller
- Built-in RGB chroma-key
- Built-in color matte generator
- Fill video input terminal for DSK
- DSK masking function
- Y, C, and black levels and hue (u version only) can be preset.

PRECAUTIONS

Safety Precautions

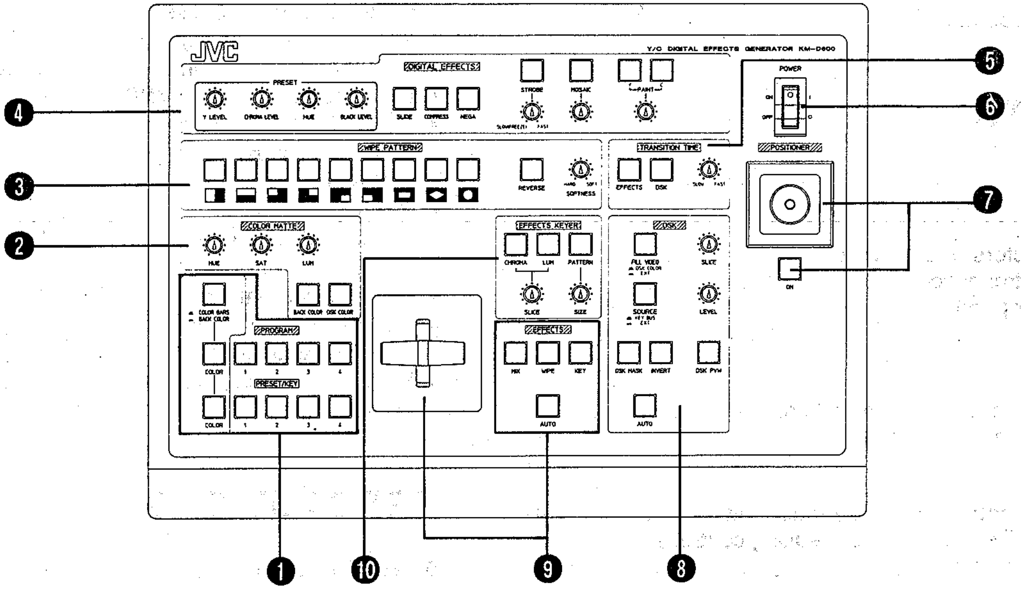
- Do not modify the unit or operate it with the cover panel removed.
- Do not allow inflammable objects, water or metallic objects to get inside the unit as these will cause damage or malfunction.
- When not to be used for a long period of time, be sure to disconnect the power cord from the power outlet.
- When there is any abnormality (noise, smell, smoke, etc.) with the unit, immediately switch off, disconnect the power cord from the power outlet, and contact your nearest JVC-authorized service agent.

Handling Precautions

- For an extended service life, avoid using the unit in a place subject to extreme temperatures, high humidity, strong vibrations, excessive dust, or in a place near the source of noise.
- Avoid strong vibrations and shocks when installing or carrying.
- Do not apply strong force to the fader lever or handle it violently.
- The standard positioning of the control panel is horizontal. Never lean it by more than 45° from the horizontal.
- The video output signal (component) of the KM-D600 conforms to the specifications of S-VHS video recorders.
- When the power is switched on, the setting of the fader lever corresponds to that obtained when it is pushed to either the top or bottom position, regardless of its physical position. Before the power is switched on, the fader lever should be pushed all the way up or down.
- When the power is switched off even for a moment, the settings of all the controls are cancelled and reset to their original (settings obtained when the power is switched on). If the unit should be used where power supply conditions are not stable, it is recommended that a backup power supply be used.
- A cooling fan is provided in the rear panel. When mounting the unit in a rack, etc., ensure sufficient ventilation space at the rear.

CONTROLS, CONNECTORS AND INDICATORS

CONTROL UNIT: CONTROL PANEL


JVC
Y/C DIGITAL EFFECTS GENERATOR KM-D600
DIGITAL EFFECTS
PRESET
Y LEVEL
CHROMA LEVEL
HUE
BLACK LEVEL
SLIDE
COMPRESS
NEGA
STROBE
MOSAIC
PAINT
POWER
ON
OFF
WIPE PATTERN
REVERSE
SOFTNESS
TRANSITION TIME
EFFECTS
DSK
POSITIONER
COLOR MATTE
HUE
SAT
LUM
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
DSK
FILL VIDEO
SLICE
SOURCE
LEVEL
BACK COLOR
DSK COLOR
PROGRAM
PRESET/KEY
COLOR
EFFECTS
MIX
WIPE
KEY
AUTO
DSK MASK
INVERT
DSK PVW
AUTO
ON
④
③
②
⑤
⑥
⑦
①
⑩
⑨
⑧

① **Cross-point select buttons**
To select video sources for processing. One video source can be selected for each bus from four input video signals (1 - 4) and internally-generated color signals (background color or color bars).

- **[PROGRAM 1 -4, COLOR]** Program bus select buttons
  To select the signal on the PROGRAM bus.
- **[PRESET/KEY 1 - 4, COLOR]** Preset/Key bus select buttons
  To select the signal on the PRESET bus. The selected signal is standing by to be output to the PROGRAM bus. Use the EFFECTS buttons and fader lever ⑨ to feed the selected signal to the PROGRAM bus. These buttons are also used as KEY source select buttons for keying with the EFFECTS KEYER buttons ⑩ and DSK buttons ⑧.
- **[COLOR BARS/BACK COLOR]** Color signal select buttons
  To select the mode of the color signals used on the two buses (PROGRAM and PRESET/KEY). When the built-in color bars signal is selected, the button is lit, When the background color signal set by the COLOR MATTE controls ② is selected, the light will go out.

Information
An Auto Freeze function which automatically freezes the last picture field whenever the video signal is interrupted is available through internal switching. For details, consult an authorized JVC service agent.

Refer to the section 2.4
of this service manual.

② **[COLOR MATTE] Color signal setting controls**
To set the hue, saturation and brightness of the two color signals (BACK COLOR and DSK COLOR).

- **[BACK COLOR]** Background color select button
  Press this button to set the background color signal used on the PROGRAM and PRESET/KEY buses.
- **[DSK COLOR]** Downstream keyer fill color select button
  Press this button to set the color signal used by the DSK controls ⑧.
- **[HUE]** Hue control
- **[SAT]** Saturation (color density) control
- **[LUM]** Luminance (brightness) control

③ **[WIPE PATTERN]** Wipe/compress pattern select buttons and controls

- [◨ – ◘] Pattern select buttons
  Press to select a pattern. Nine patterns are available and the pattern corresponding to each button is indicated beneath it. Wipe or compress movement is in the direction in which the white area increases.
- **[REVERSE]** Direction reverse button
  To reverse the wipe or compress movement in the direction in which the black area increases.
- **[SOFTNESS]** Softness control
  Controls the sharpness of the wipe pattern edges. When the control is turned all the way to the HARD position, the softness circuit is switched off. Turn it toward the SOFT position to increase the degree of softness.

Notes

- The following three patterns ◘ , ◘ , and ◘ cannot be used when the DIGITAL EFFECTS SLIDE button is used.
- The following two patterns ◘ and ◘ cannot be used when the *background effect* is controlled with the DIGITAL EFFECTS COMPRESS button.
- The SOFTNESS control has no effect on the edges produced with the slide and compress effects.

❹ [DIGITAL EFFECTS] Digital effects setting controls

- **[PRESET] Preset controls**
  To fine-adjust the picture quality of the video signal selected on the PRESET/KEY bus. The settings are held in memory independently for each input channel. Each control has a center click position. The video signal on the PROGRAM bus will be adjusted accordingly when the adjusted signal is selected as the PROGRAM bus output.

Y LEVEL:	Varies the brightness within the range of ± 3 dB. (The sync level remains constant.)
CHROMA LEVEL:	Varies the chroma level within the range of ± 3 dB.
HUE (U version only):	Varies the hue within the range of ± 30°.
BLACK LEVEL:	Varies the black level within the range of ± 10%.

- **[SLIDE]** Slide effect button
  Press when the *slide effect* is required. This button cannot be pressed together with the COMPRESS button.
- **[COMPRESS]** Compress effect button
  Press when the *compress effect* is required. This button cannot be pressed together with the SLIDE button.
- **[NEGA]** Image reversal button
  Press when a negative image is required. Simultaneously reverses the luminance and chroma signals.
- **[STROBE]** Stroboscopic effect select button and interval setting control
  Press the button to strobe the picture (the button lights when engaged). The freeze on/off interval can be set with the control under the button. To shorten the interval, turn it toward FAST; to increase the interval, turn it toward SLOW (FREEZE). Turn it all the way to SLOW (FREEZE) to engage the freeze mode.
- **[MOSAIC]** Mosaic effect button and texture control
  Press the button when the *mosaic effect* is required. Texture can be varied in 16 steps with the control under the button. Turning it clockwise makes the grid coarser.
- **[PAINT Y, C]** Paint effect buttons and texture control
  Used when the *paint effect* (creates an image which looks as if it has been colored with a paint brush) is required. The Y (luminance) and C (chroma) buttons can be turned on independently or simultaneously. Texture can be varied with the control under the buttons. Turning it clockwise makes the texture coarser.

Notes

- All buttons are on/off alternate buttons.
- The SLIDE and COMPRESS buttons cannot be engaged at the same time. With other buttons, any combination is possible and any number of effects can be used simultaneously.

❺ [TRANSITION TIME] Effect transition time controls

To set the automatic transition time of an effect selected from either group of effects.

- **[EFFECTS]** Main effects button
  Press this button to set the automatic transition time for an operation performed with the EFFECTS controls ❾.
- **[DSK]** DSK effects button
  Press this button to set the automatic transition time for an operation performed with the DSK controls ❽.
- **[SLOW-FAST]** Transition time control
  Varies the transition time from 0 to about 20 seconds. When turned all the way to FAST, the time is 0 second; that is, instant cutting takes place. At the center position, the time is approx. 4 seconds, and, when turned all the way to SLOW, time is about 20 seconds.

Note
When the digital compress effect is used as a background effect, possible transition time settings are from 0 to 1.2 seconds.

❻ [POWER] Power switch

❼ [POSITIONER] Positioner on/off button and joystick control

Used to shift the center position of a wipe/compress pattern, or to move a digitally compressed picture to the desired position.

- **[ON]** Positioner on/off button
  Press to ON (the button is lit or blinks) to activate the positioner.
- Joystick control
  When the button is lit or blinking, move the joystick to shift a selected pattern. This effect is possible with the following three patterns: ▣ , ▣ , and ▣ .
  When used with the *digital compress effect*, the ◨ and ⬓ patterns can also be moved.

❽ [DSK] Downstream keyer buttons and controls

Used to select the DSK mode and feed the selected effect to the PROGRAM bus output.

- **[FILL VIDEO]** Fill video signal select button
  Selects the fill video signal to be used in the *DSK effect*.

DSK COLOR (button is lit):	The color signal (DSK COLOR) selected and adjusted with the COLOR MATTE controls ❷ serves as a fill video signal.
EXT (button is not lit):	The picture signal produced from R/G/B signals applied to the rear panel DSK R/G/B INPUT connectors ⓯ serves as a fill video signal.

- **[SOURCE]** DSK source select button
  Selects the video signal to serve as the DSK source.

KEY BUS (button is lit):	The luminance signal of the video signal selected on the PRESET/KEY bus ⓫ serves as the DSK source.
EXT (button is not lit):	The luminance signal of the key signal applied to the rear panel DSK KEY INPUT connector ⓯ serves as the DSK source.

Information
It is also possible to use the signals applied to the DSK R/G/B INPUT connectors as a DSK source. This requires internal switching. If necessary, consult an authorized JVC service agent. A fee will be charged for this modification.

Refer to the section 2.4
of this service manual.

- **[DSK MASK]** Masking on/off button
  To mask the area where keying is not desired with a selected wipe pattern. The button is lit when ON.
- **[INVERT]** Key source invert button
  To invert the key source signal so that the darker portion of the luminance signal is used for keying. The button is lit when ON.
- **[SLICE]** DSK slice level control
  Varies the slice level of the DSK source signal.
- **[LEVEL]** DSK mixing level control
  Varies the mixing level of the *DSK effect* with respect to the PROGRAM bus video signal.
- **[DSK PVW]** DSK preview button
  To check the *DSK effect* on the preview monitor before feeding it to the PROGRAM bus. The button lights when ON, and automatically switches off once the *DSK effect* has been fed to the PROGRAM bus.
- **[AUTO]** DSK feed button
  Feeds the *DSK effect* to the PROGRAM bus. The transition lasts for the time preset with the TRANSITION TIME controls ❺. To switch off the *DSK effect*, press the same button again. The effect will be cancelled automatically with the transition lasting for the preset time. While the effect is in progress, the button blinks.

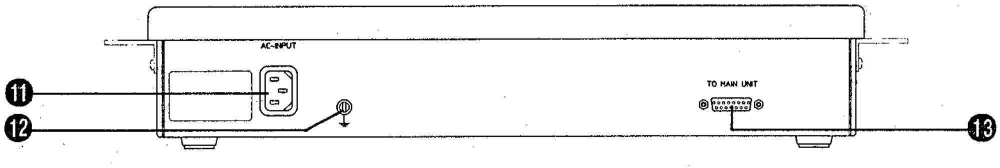
❾ [EFFECTS] Effects feed buttons and fader lever
Used to feed the video signal selected on the PRESET/KEY bus to the PROGRAM bus for a *background effect*, or to switch the *key effect* preset with the EFFECTS KEYER controls ❿, on or off using a *mix* or *wipe effect*.

- **[EFFECTS]** Effect mode select buttons
  MIX: Allows feeding or switching on/off with a *mix effect*. (Cannot be used together with the *wipe effect*.)
  WIPE: Allows feeding or switching on/off with a *wipe effect*. (Cannot be used together with the *mix effect*.)
  KEY: To select the PRESET/KEY bus either for a *background effect* (OFF: the button is not lit) or for a *key effect* (ON: the button is lit).
- [AUTO] Auto transition button
  Press to send the selected effect automatically. The transition lasts for the time preset with the TRANSITION TIME controls ❺. The button blinks while the effect is in progress.
- Fader lever
  Move the lever to send the selected effect manually.

❿ [EFFECTS KEYER] Effects keyer buttons and controls
To set a *key effect* for on/off switching with the EFFECTS controls ❾. Also used to set the DSK masking effect executed with the DSK controls ❽.

- **[CHROMA]** Chroma key on/off button
  Press to select the chroma key mode. (The button lights.)
- **[LUM]** Luminance key on/off button
  Press to select the luminance key mode. (The button lights.)
- **[PATTERN]** Pattern key on/off button
  Press to select the pattern key mode. (The button lights.) When this button is pressed together with either the CHROMA or LUM button, the portion that should not be keyed in *chroma* or *luminance keying effects* can be masked (covered) with a wipe pattern.
- **[SLICE]** Slice level control
  Varies the slice level of the key source when the chroma key or luminance key mode is selected.
- **[SIZE]** Pattern size control
  Varies the size of the wipe pattern for a key source when the pattern key mode is selected. Also used to set the size of the wipe pattern for masking, or the compression ratio when the digital compress effect is used in keying.

CONTROL UNIT: REAR PANEL



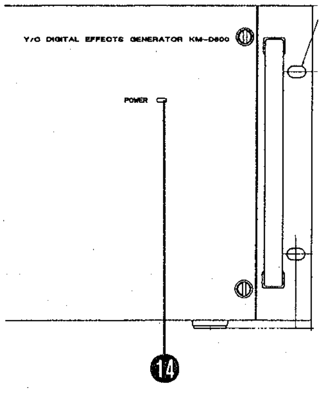
⓫ [AC INPUT] AC input socket
Connect to an AC outlet using the provided power cable.

⓬ Ground terminal
A ground terminal for the entire system. To prevent malfunctions due to noise, ground the chassis across units and racks.

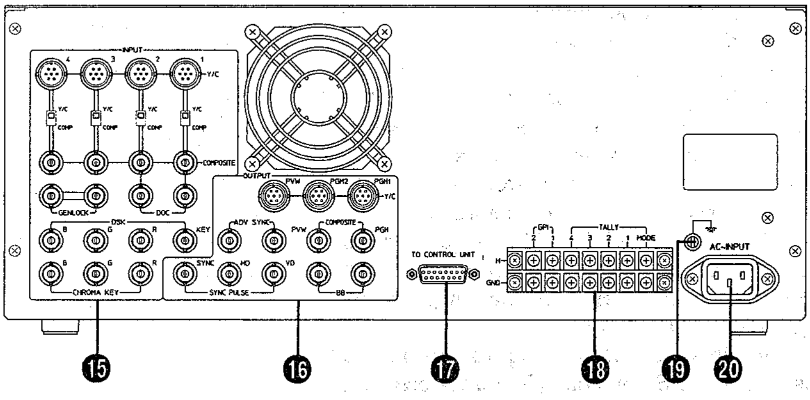
⓭ [TO MAIN UNIT] Connector
Connect to the main unit using the provided cable.

MAIN UNIT

- Front Panel



- Rear Panel



⑭ [POWER] Power indicator
Lights when the power is on. The POWER switch is located on the control unit.

⑮ [INPUT] Input connectors
Connectors for different types of signals are provided.

- **[Y/C 1 - 4]** Video signal input connectors (7-pin S-connectors)
  Exclusively for the Y/C signal. Numbers 1 - 4 correspond to those of the cross-point select buttons ❶. To input to these connectors, set the switches underneath to the "Y/C" position.
- **[COMPOSITE 1 - 4]** Video signal input connectors (BNC)
  For the composite video signal. Numbers 1 - 4 correspond to those of the cross-point select buttons ❶. To input to these connectors, set the switches above to the "COMP" position.
- **[Y/C, COMP]** Input select switches
  Set to "Y/C" when a Y/C signal is input.
  Set to "COMP" when a composite video signal is input.
- **[GENLOCK]** External reference signal input connectors (BNC)
  Apply a reference sync signal (either composite video signal or black burst signal). One of the connectors can be used as a loop-through output connector. If loop-through connection is not required, terminate the connector with the provided 75-ohm termination plug.
- **[DOC 1, 2]** Dropout compensator input connectors
  To detect dropouts in a VTR's output, connect the DOC OUT terminal of the VTR (which outputs the playback RF signal) to these connectors.

Notes

- The RF converter output for television cannot be connected to these connectors.
- DOC 1 is exclusively for the VTR connected to INPUT 1, and DOC 2 for the VTR connected to INPUT 2. Dropouts cannot be detected with VTRs connected to INPUT 3 and 4.
- Dropout compensation is applied to the Y/C signal input to DOC 1 and DOC 2. If composite signals are input to these terminals, no compensation takes place.

- **[DSK R/G/B]** DSK fill video signal input connectors (BNC)
  Apply R, G, and B signals to be used as a fill video signal in DSK operations.
- **[DSK KEY]** Key signal input connector (BNC)
  Apply the signal selected as a key source in DSK operations. When connecting a character generator which includes a key output (edge signal output, etc.) in addition to R, G, and B outputs, connect the key output to this connector.
- **[CHROMA KEY R/G/B]** Chroma key signal input connectors (BNC)
  Apply R, G and B signals for use in chroma keying.

⑯ [OUTPUT] Output connectors
Connectors for different types of outputs are provided.

- **[PGM Y/C 1, 2]** (7-pin S-connectors)
  Each outputs the PROGRAM bus video signal in the Y/C mode.
- **[PVW Y/C]** (7-pin S-connector)
  Outputs the preview video signal in the Y/C mode.
- **[PGM COMPOSITE]** (BNC)
  Outputs the PROGRAM bus video signal in the composite mode (VBS).
- **[PVW COMPOSITE]** (BNC)
  Outputs the preview video signal in the composite mode (VBS).

The following connectors output various reference signals generated by the KM-D600's built-in sync signal generator. When the KM-D600 is used in the external sync mode, these signals are output in sync with the external reference signal.

- **[BB]** Black burst output connectors (BNC)
  Each outputs a black burst signal.
- **[HD]** Horizontal sync signal output connector (BNC)
- **[VD]** Vertical sync signal output connector (BNC)
- **[SYNC]** Sync signal output connector (BNC)
- **[ADV SYNC]** VTR servo lock signal output connectors (BNC)
  Connect to the SYNC IN connectors of VTRs.

- Reference Information for E version
  The output signal from the PGM Y/C 1 can be internally switched over to the Y/C 924 format. For details, consult an authorized JVC service agent.

Refer to the section 2.4
of this service manual.

⑰ **[TO CONTROL UNIT] Connector**
Connect to the TO MAIN UNIT connector of the control unit using the provided cable.

⑱ **[TALLY, GPI] Tally and GPI input terminals**

- **[TALLY 1 - 4/MODE]** Tally output terminals
  Normally supplies tally power (5 V DC, max.10 mA) as well. When the MODE terminal is shorted to GND, it is possible to operate the tally in the make-contact mode.
- **[GPI 1, 2]** General purpose interface terminals
  These terminals make it possible to control the KM-D600 from an external unit such as an editing controller.
  GPI 1: Shorting this to GND triggers automatic transition of an effect selected with the EFFECTS controls ⑨. (Same as pressing EFFECTS AUTO button.)
  GPI 2: Shorting this to GND triggers automatic transition of a DSK effect. (Same as pressing DSK AUTO button ⑧.)

Information
When the KR-M820 MII VTR is used in combination with the KM-D600, automatic swapping of the video signals on the PROGRAM and PRESET/KEY buses is possible when the GPI 1 and 2 terminals are used simultaneously. Resetting of internal switches is necessary. For more details, consult an authorized JVC service agent.

Refer to the section 2.4 of this service manual.

⑲ **Ground terminal**
A ground terminal for the entire system. To prevent malfunctions due to noise, ground the chassis across units and racks.

⑳ **[AC INPUT] AC input socket**
Connect to an AC outlet using the provided power cable.

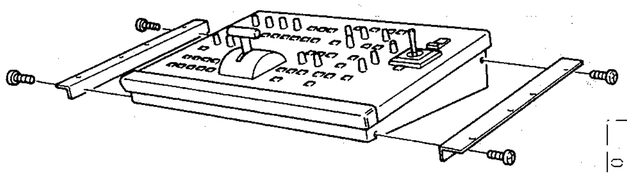
INSTALLATION

Screws required for installation are not provided. Obtain appropriate screws.

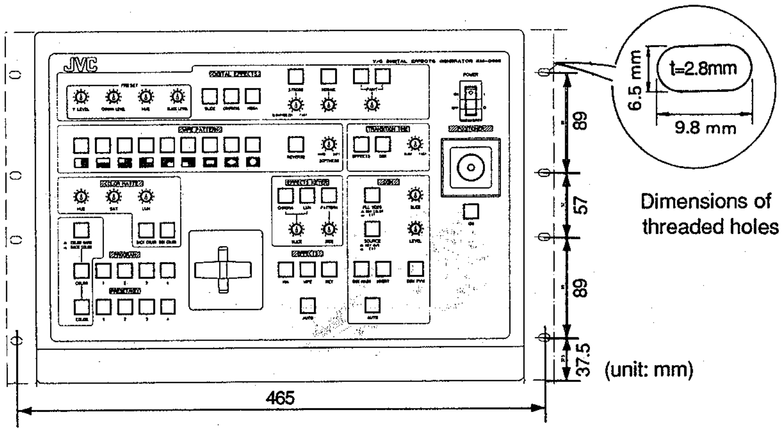
INSTALLING THE CONTROL UNIT IN A CONTROL CONSOLE

Although the KM-D600 is designed as a desk-top model, it can be installed in a control console built to the EIA 19-inch rack standard by using the provided side brackets.

1. Attach the side brackets to the control unit with provided screws. (The side brackets are the same for the right and left.)



2. Install the control unit into the console referring to the dimension diagram shown below.
   - The standard operating position of the control unit is horizontal. Do not install it at an angle greater than 45°, otherwise the fader lever may move under its own weight.
   - Do not attempt to lift the control unit with the fader lever.


6.5 mm
t=2.8mm
9.8 mm
89
57
89
37.5
Dimensions of threaded holes
(unit: mm)
465

INSTALLING THE MAIN UNIT IN A RACK

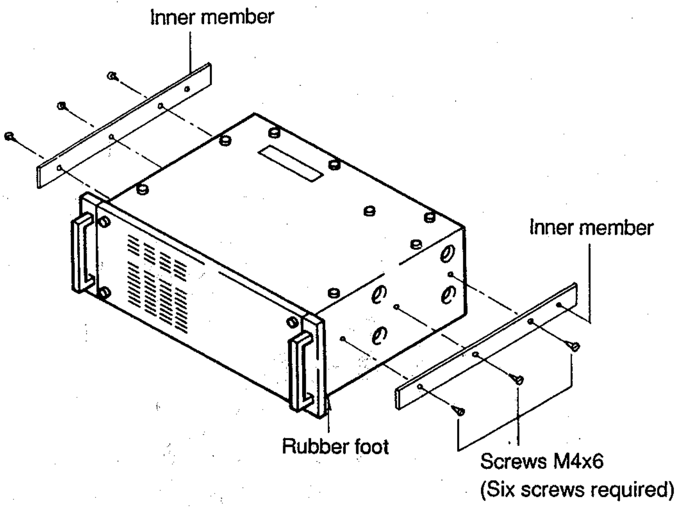
The main unit can be installed in an EIA 19-inch rack using specified slide rails.

1. Remove the screws retaining the rubber feet (at four locations).
2. Attach the inner member of the slide rail to each side of the main unit.
3. Attach the outer member of the slide rail to each side of the rack, and then slide the main unit into the rack.

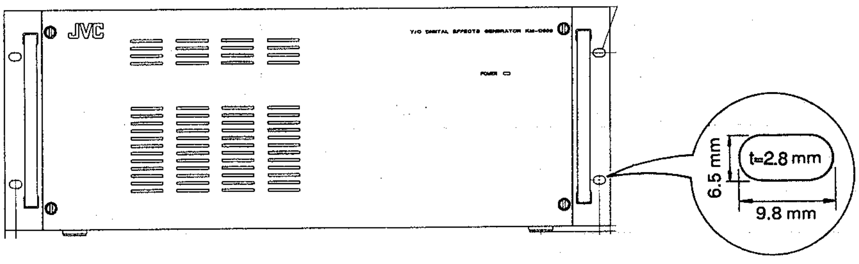
Usable slide rails

Model No.	Manufacturer	Length
C-305-20	Accuride Co., Ltd.	508 mm (20")

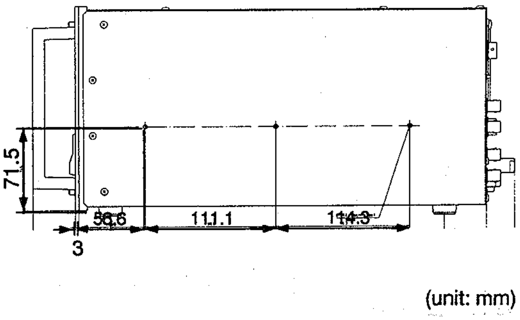
* For attaching the outer member to the rack, consult the dealer from whom you purchased the slide rails or the rack.


Inner member
Inner member
Rubber foot
Screws M4x6
(Six screws required)

How to attach the inner member


6.5 mm
t=2.8 mm
9.8 mm

Dimensions of threaded holes


71.5
56.6
111.1
114.3
3
(unit: mm)

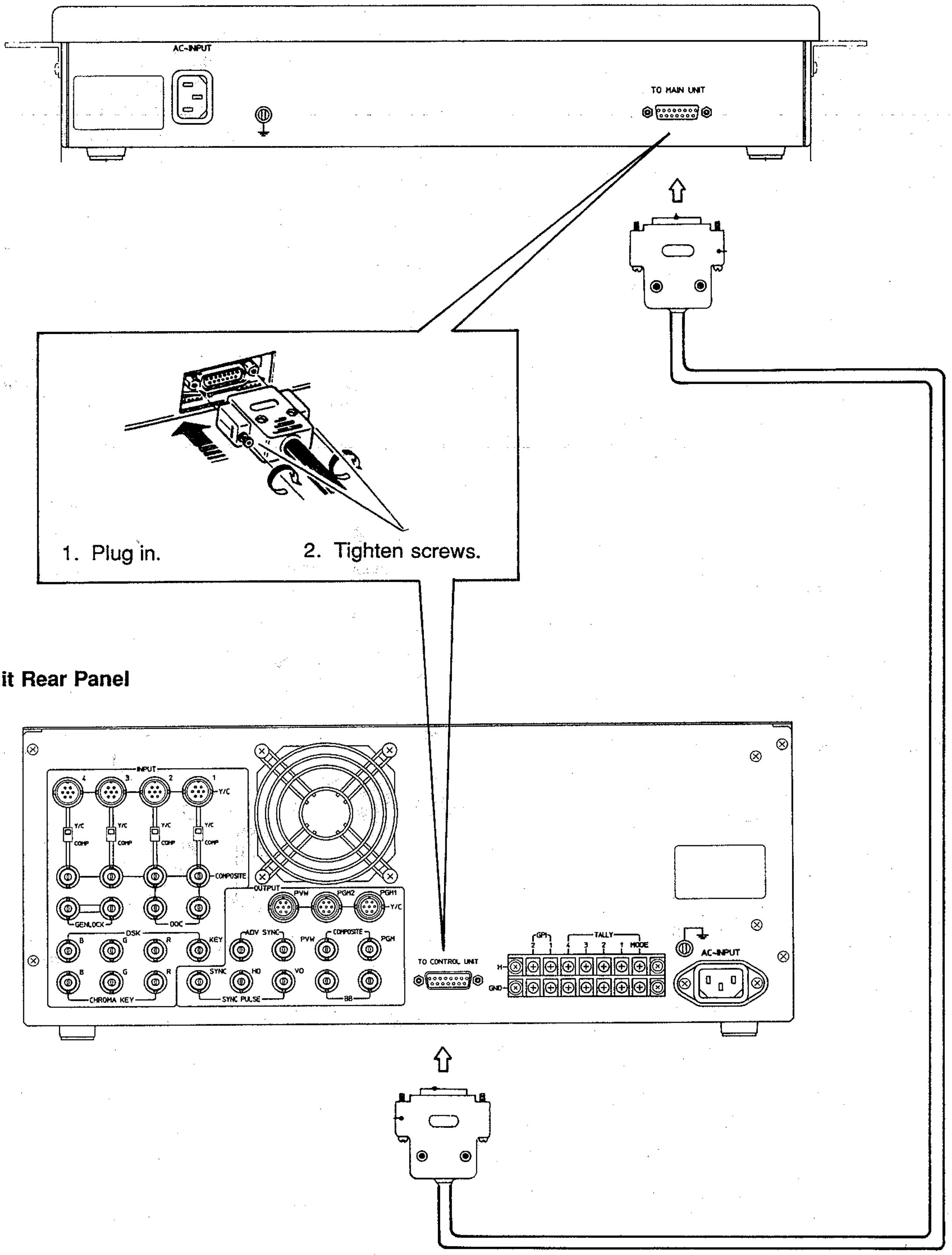
Dimensions of inner member mounting hole positions

CONNECTIONS

CONNECTING THE CONTROL UNIT TO THE MAIN UNIT

Use the provided cable.

Control Unit Rear Panel

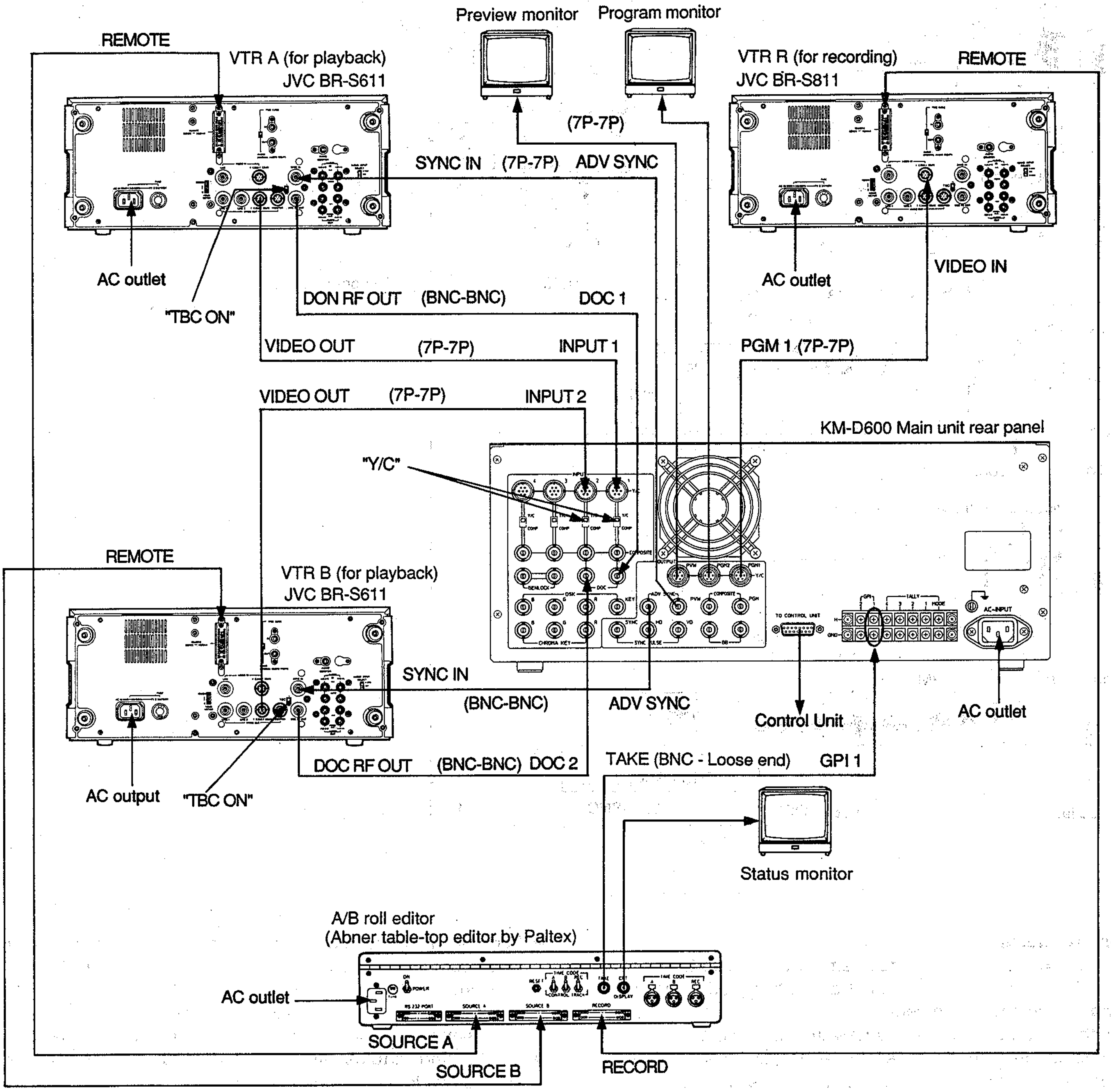

AC-INPUT
TO MAIN UNIT
1. Plug in.
2. Tighten screws.
INPUT
4
3
2
1
Y/C
COMP
COMPOSITE
GENLOCK
DOC
DSK
B
G
R
KEY
CHROMA KEY
OUTPUT
PVW
PGM2
PGM1
ADV SYNC
COMPOSITE
PGM
SYNC
HD
VD
SYNC PULSE
BB
TO CONTROL UNIT
GPI
TALLY
MODE
H
GND
AC-INPUT

Main Unit Rear Panel

Information
The cable can be extended up to 100 m (328 ft). Any further extension will cause malfunctions.

CONNECTING TO VTRs, MONITORS, AND EDITING CONTROLLERS

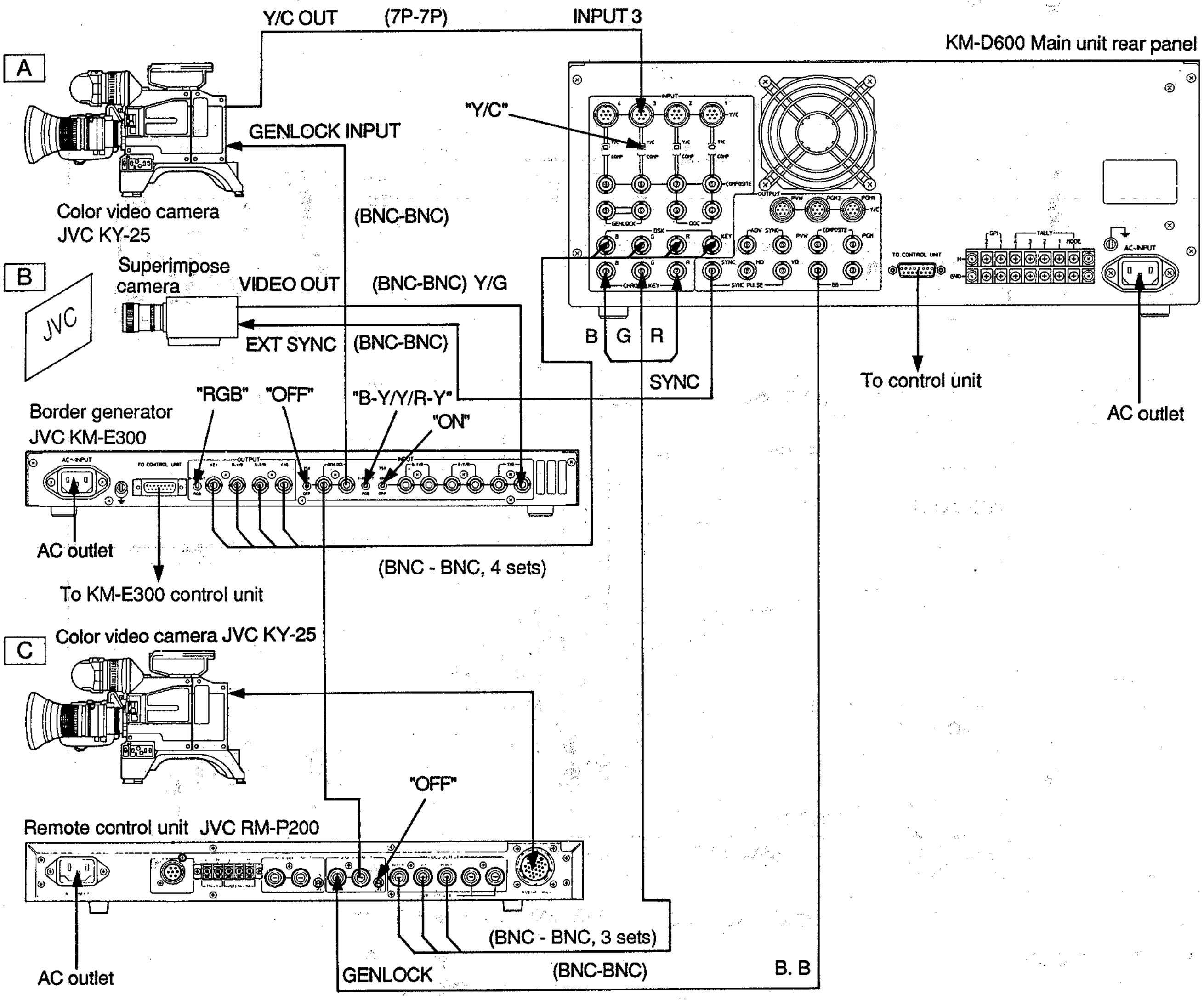
The diagram below shows a system example in which three S-VHS VTRs are used for A/B roll editing. Since the KM-D600 incorporates two timebase correctors, VTR playback signals can be input directly to the KM-D600.


Preview monitor
Program monitor
REMOTE
VTR A (for playback)
JVC BR-S611
VTR R (for recording)
JVC BR-S811
REMOTE
(7P-7P)
SYNC IN
(7P-7P)
ADV SYNC
AC outlet
"TBC ON"
DON RF OUT
(BNC-BNC)
DOC 1
VIDEO IN
AC outlet
VIDEO OUT
(7P-7P)
INPUT 1
PGM 1 (7P-7P)
VIDEO OUT
(7P-7P)
INPUT 2
KM-D600 Main unit rear panel
"Y/C"
REMOTE
VTR B (for playback)
JVC BR-S611
SYNC IN
(BNC-BNC)
ADV SYNC
Control Unit
AC outlet
DOC RF OUT
(BNC-BNC)
DOC 2
TAKE (BNC - Loose end)
GPI 1
AC output
"TBC ON"
Status monitor
A/B roll editor
(Abner table-top editor by Paltex)
AC outlet
SOURCE A
SOURCE B
RECORD

- For audio connections, refer to the instruction manual of the VTR or audio mixer you are using.
- For connections and operations of time code generator/readers, VTRs and editing controllers, refer to the relevant instruction manuals.
- Be sure to connect KM-D600's ADV SYNC to the VTRs' SYNC IN connectors.
- Connecting cables are not provided. Obtain cables appropriate to the intended application.
- Set the sync mode of the playback VTRs to EXT.

CONNECTING TO KEYING CAMERAS

By adding cameras to the system shown on the previous page, you can insert characters and graphics and use special effects such as chroma keys.


Y/C OUT
(7P-7P)
INPUT 3
KM-D600 Main unit rear panel
A
GENLOCK INPUT
"Y/C"
Color video camera
JVC KY-25
(BNC-BNC)
B
Superimpose camera
VIDEO OUT
(BNC-BNC) Y/G
JVC
EXT SYNC
(BNC-BNC)
B
G
R
SYNC
To control unit
AC outlet
"RGB"
"OFF"
"B-Y/Y/R-Y"
"ON"
Border generator
JVC KM-E300
AC outlet
(BNC - BNC, 4 sets)
To KM-E300 control unit
C
Color video camera JVC KY-25
"OFF"
Remote control unit JVC RM-P200
AC outlet
(BNC - BNC, 3 sets)
GENLOCK
(BNC-BNC)
B. B

System examples

[A] In this example, a color video camera connected to one of the INPUT connectors is used as both a studio camera and a superimpose camera.

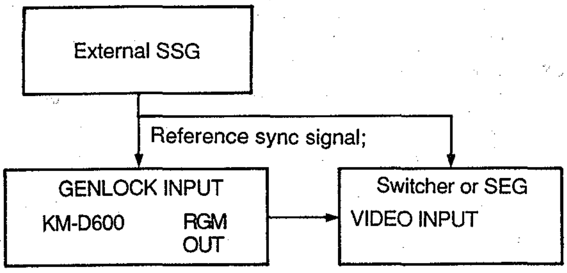
[B] In this example, a black-and-white camera is used in combination with a border generator to insert border-defined characters. A character generator can be connected instead of the camera and border generator combination.

[C] In this example, chroma key operations can be performed. With the KM-D600, chroma keying is possible only with RGB signals. Composite video signal input is unnecessary.

- For more information on connections and operations of color video cameras, remote control units and VTRs, refer to the relevant instruction manuals.
- The RGB outputs of a character generator must be analog RGB signals (without sync). TTL-RGB cannot be connected.
- Connecting cables are not provided. Obtain cables appropriate to the intended application.

PREPARATIONS (System Adjustments)

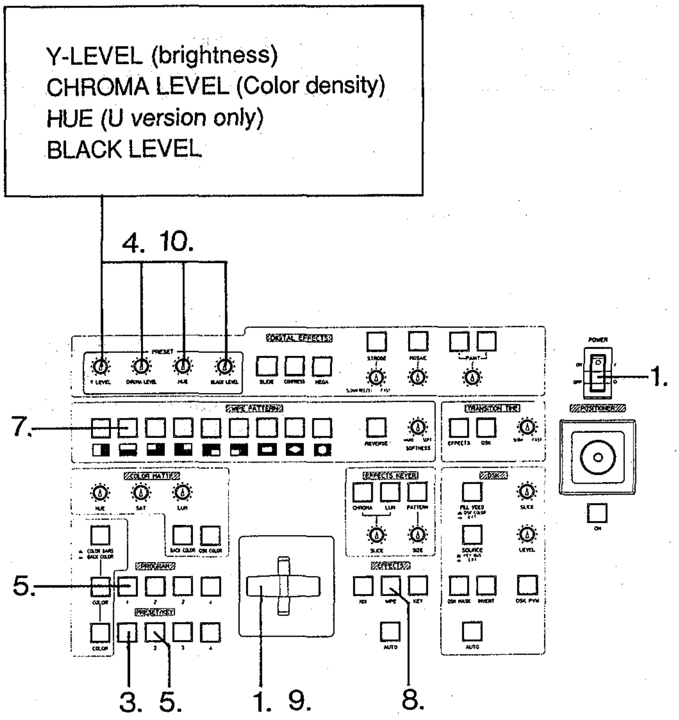
PHASE ADJUSTMENT



In this example, phase adjustment of the KM-D600's output video signal is necessary.

Because the KM-D600 incorporates timebase correctors, phase adjustment of the input video signal is not necessary. Only when the KM-D600 operates in the external sync mode with a reference signal applied to the GENLOCK connector and its output video signal is supplied to a separate switcher or SEG, is phase adjustment of the output video signal required. Parts to be adjusted are located inside the unit. If necessary, *consult an authorized JVC service agent.*

VIDEO LEVEL AND COLOR ADJUSTMENT (Simplified method)



It is possible to fine-adjust the video level and color of each input video signal (from 1 to 4). The following describes a simplified adjustment procedure using the system shown on page 10 as an example. (Alignment of video levels and color tones of the two connected VTRs)

1. Make sure that the fader lever is at the bottom position and then turn on the KM-D600 and other connected units.
2. Play back tapes with the same contents on the two VTRs simultaneously.
3. Select INPUT 1 (VTR A) on the PRESET/KEY bus.
4. Adjust the video level and color tone of VTR A referring to the preview monitor.
5. Select INPUT 2 (VTR B) on the PRESET/KEY bus.
6. Select INPUT 1 (VTR A) on the PROGRAM bus.
7. Press the ⬓ button.
8. Press the WIPE button.
9. Move the fader lever to its center position.
   The input 1 and input 2 video signals will appear in the lower half and the upper half of the program monitor respectively.
10. Adjust the video level and color tone of VTR B to match those of VTR A.

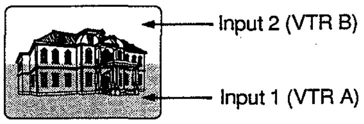


Image on the program monitor
(at step 9)

Information

- With some pictures, it may be difficult to compare input 1 and input 2 on a vertically-split screen. In this case, use another wipe pattern.
- Only the signal selected on the PRESET/KEY bus can be adjusted. (The color bars and background colors cannot be adjusted.)

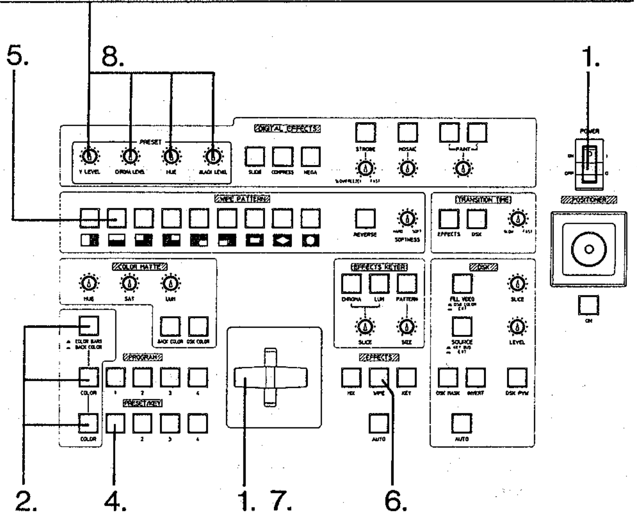
VIDEO LEVEL AND COLOR ADJUSTMENT (Using built-in color bars)

The following describes an adjustment procedure using the built-in color bars. The system shown on page 10 is used as an example.

To use this method, it is necessary to record the color bars signal of the camera's built-in color bars generator for 30 seconds to one minute.

For more accurate adjustment, special instruments such as a waveform monitor, a vectorscope, etc. are required. Consult an authorized JVC service agent.

Y-LEVEL (brightness): Adjust referring to the white portion of the color bars.
CHROMA LEVEL (Color density)
HUE (U version only)
Adjust referring to the color portions.
BLACK LEVEL: Adjust referring to the black portion.



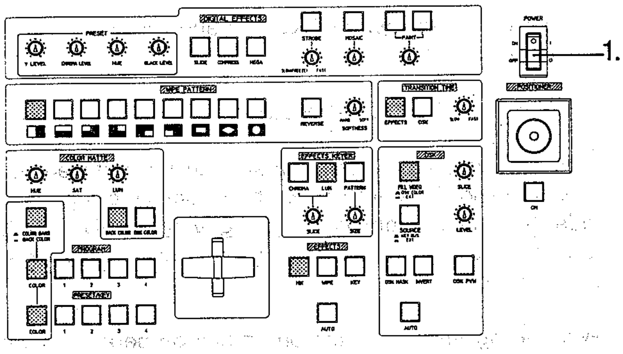
1. Make sure that the fader lever is at the bottom position and then turn on the KM-D600 and other connected units.
2. Make sure that the COLOR BARS/BACK COLOR button and the COLOR buttons on both the PROGRAM and PRESET/KEY buses are lit.
   (The color bars will be seen on the program monitor.)
3. Load the tape in VTR A and play back the color bars segment.
4. Select INPUT 1 (VTR A) on the PRESET/KEY bus.
5. Press the ⬓ button.
6. Press the WIPE button.
7. Move the fader lever to its center position.
   The built-in color bars and input 1 video signals will appear in the lower half and the upper half of the program monitor respectively.
8. Adjust the video level and color tone of VTR A to match the built-in color bars.
9. Repeat steps 3 through 8 for VTR B.

Note

If the hue and video levels of the playback signal differ extremely from the reference signal, it may not be possible to adjust them using only the KM-D600. In this case, first correct the playback signal using a color corrector and then apply the corrected signal to the KM-D600.

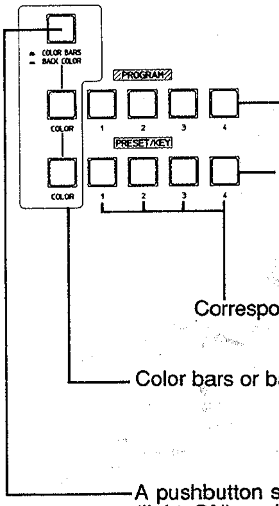
OPERATION

POWER ON/OFF


DIGITAL EFFECTS
PRESET
Y LEVEL
CHROMA LEVEL
HUE
BLACK LEVEL
SLIDE
COMPRESS
NEGA
STROBE
MOSAIC
PAINT
POWER
ON
OFF
1.
WIPE PATTERN
REVERSE
SOFTNESS
TRANSITION TIME
EFFECTS
DSK
SLOW
FAST
POSITIONER
ON
COLOR MATTE
HUE
SAT
LUM
BACK COLOR
DSK COLOR
COLOR BARS
BACK COLOR
PROGRAM
COLOR
1
2
3
4
PRESET/KEY
COLOR
1
2
3
4
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
EFFECTS
MIX
WIPE
KEY
AUTO
DSK
FILL VIDEO
SLICE
SOURCE
LEVEL
DSK MASK
INVERT
DSK PVW
AUTO

1. Set the POWER switch to ON.
   The initial status is engaged (with buttons shaded in the figure lit).

INPUT SELECTION


COLOR BARS
BACK COLOR
PROGRAM
COLOR
1
2
3
4
PRESET/KEY
COLOR
1
2
3
4

PROGRAM bus select buttons

PRESET/KEY bus select buttons

Correspond to rear panel INPUT 1 to 4

Color bars or background color is selected.

A pushbutton switch between color bars mode (light ON) and background color mode (light OFF). This switch functions only when the COLOR button is pressed on either bus. Switching is effective for both buses. (For setting background colors, see page 41.)

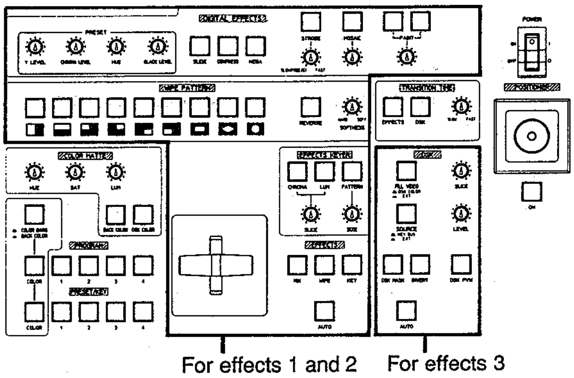
1. Press the button corresponding to the desired input on each bus. The button pressed will light. When the selected signal is output as a program signal, the button is brightly lit; when the selected signal is standing by, the button is dimly lit.

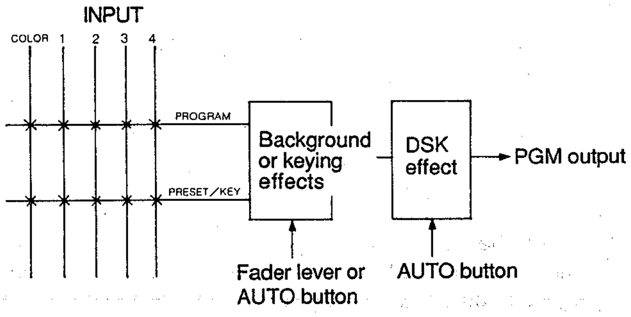
   - PROGRAM bus
     The signal selected on this bus is output as a program signal from the PGM OUT connector. To switch signals, press the corresponding buttons on the PROGRAM bus.
   - PRESET/KEY bus
     The signal selected on this bus is used for three types of special effects:
     - Background effects
     - Key effects (luminance keys)
     - Downstream key effects

Note

If a button with no corresponding input signal should be pressed by mistake, and then another button with corresponding input is pressed, the chroma level of the input video signal will be excessively high for a certain period. This is because the ACC (Auto Color Level Corrector) operates in response to the input burst signal level and, with no input signal, over-amplifies the chroma level. To avoid this phenomenon, it is recommended that black burst signals be applied to input connectors that are not used.

AVAILABLE EFFECTS


For effects 1 and 2
For effects 3


INPUT
COLOR 1 2 3 4
PROGRAM
PRESET/KEY
Background or keying effects
DSK effect
PGM output
Fader lever or AUTO button
AUTO button

The effects available from the KM-D600 are divided into three groups.

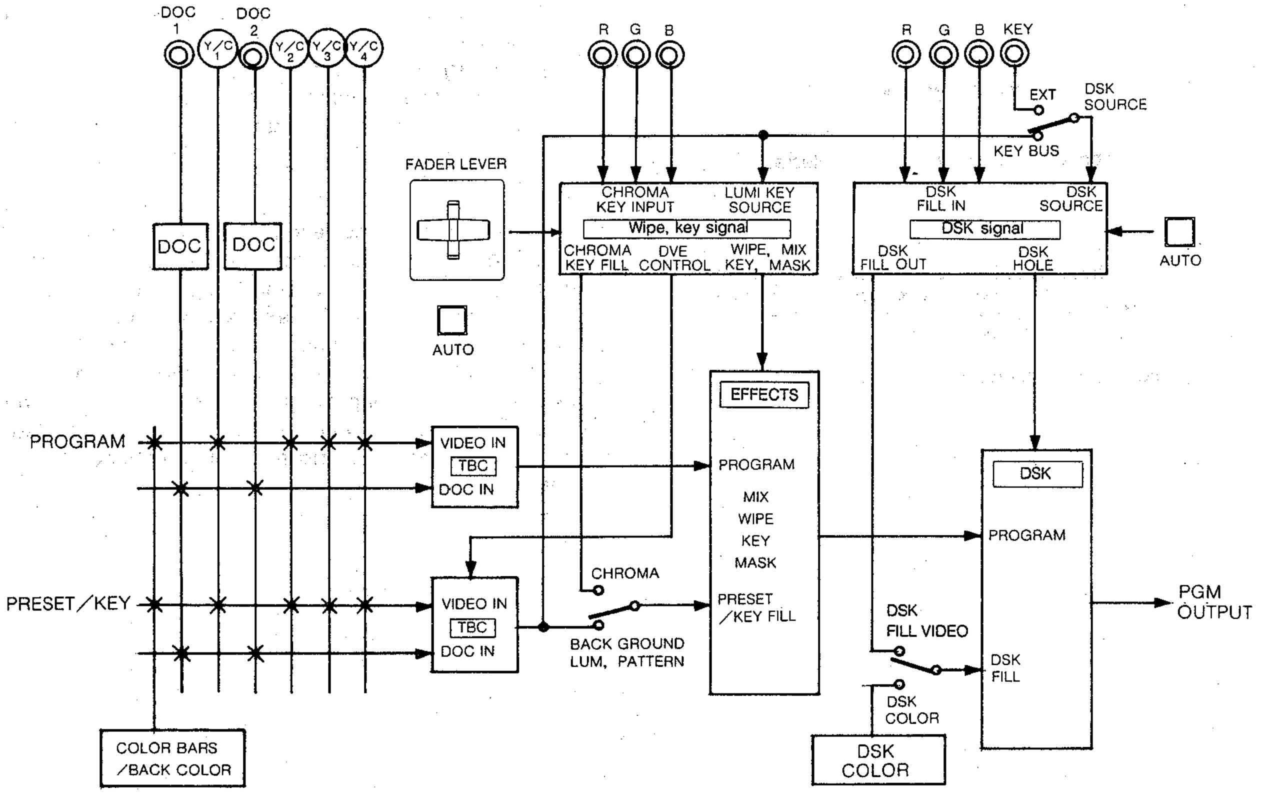
1. *Background effects*
   (Switching between PROGRAM and PRESET/KEY bus signals)
2. *Keying effects*
3. *Downstream key* (DSK) *effects*

1. With *background effects*, signals can be switched using *wipe*, *mix* and *digital effects*. Both manual switching with the fader lever and automatic switching with the AUTO button are possible. These effects cannot be used together with *keying effects*.

2. With *keying effects*, keying on/off can be performed using *wipe*, *mix* and *digital effects*. Both manual keying on/off with the fader lever and automatic keying on/off with the AUTO button are possible. These effects cannot be used together with the *background effects*.

3. With *DSK effects*, an additional effect is keyed in the signal already processed with effects 1 or 2. DSK can be switched on/off using a *mix effect* only. Automatic switching with the AUTO button is also possible. *Digital effects* cannot be used with *DSK effects*.

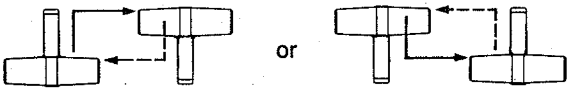
For reference: KM-D600 Video Signal Flow Chart (PGM path only)

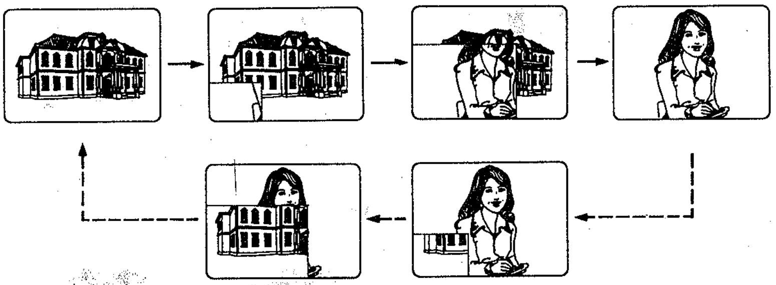
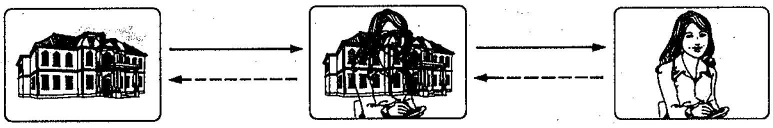
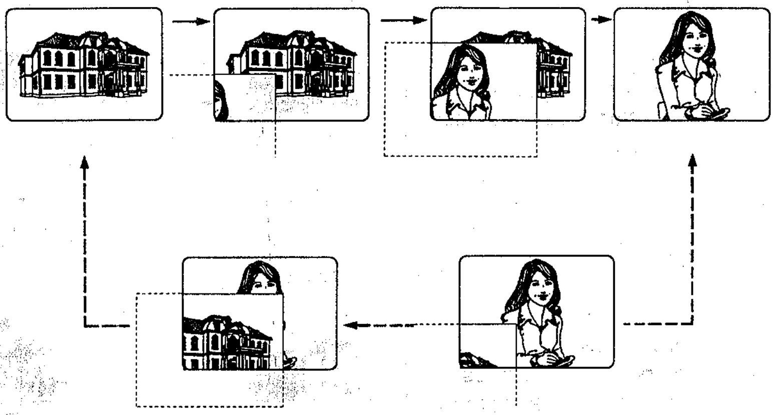
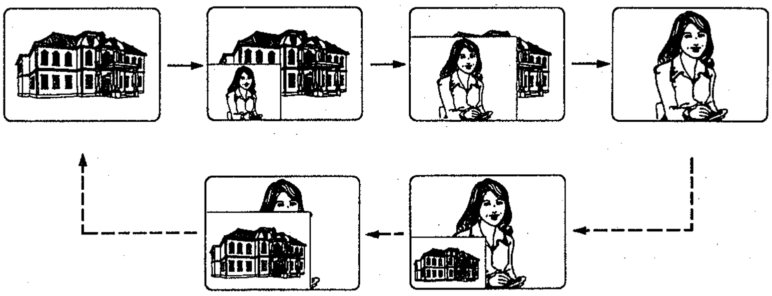

DOC 1
DOC 2
Y/C 1
Y/C 2
Y/C 3
Y/C 4
DOC
DOC
R G B
R G B KEY
EXT
DSK SOURCE
KEY BUS
FADER LEVER
AUTO
CHROMA KEY INPUT
LUMI KEY SOURCE
Wipe, key signal
CHROMA KEY FILL
DVE CONTROL
WIPE, MIX KEY, MASK
DSK FILL IN
DSK SOURCE
DSK signal
DSK FILL OUT
DSK HOLE
AUTO
EFFECTS
PROGRAM
MIX
WIPE
KEY
MASK
PRESET /KEY FILL
PROGRAM
VIDEO IN
TBC
DOC IN
PRESET/KEY
VIDEO IN
TBC
DOC IN
CHROMA
BACK GROUND LUM, PATTERN
DSK
PROGRAM
DSK FILL VIDEO
DSK FILL
DSK COLOR
DSK COLOR
PGM OUTPUT
COLOR BARS /BACK COLOR

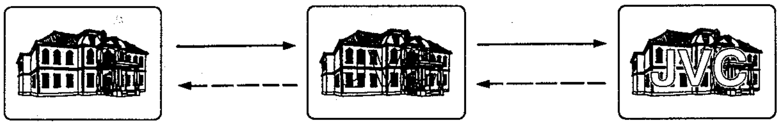
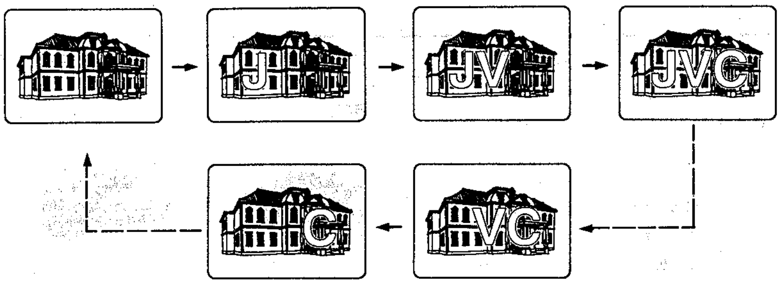
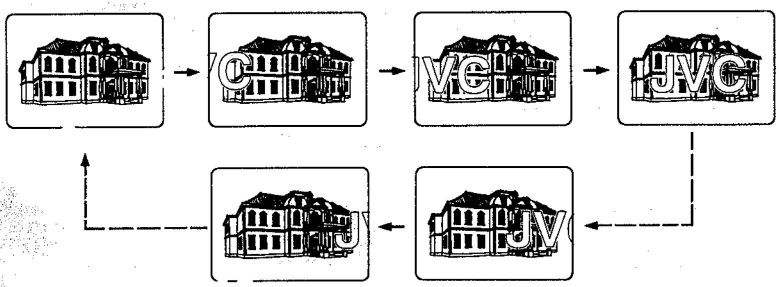
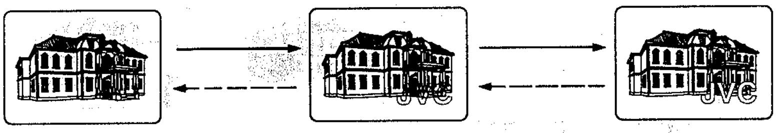
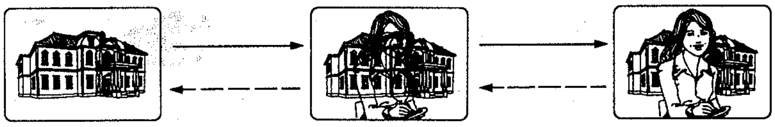
QUICK GUIDE TO EFFECTS

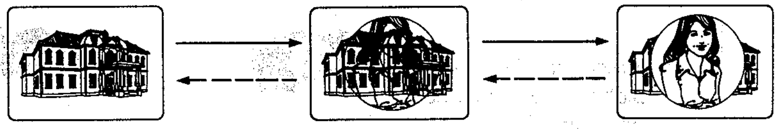
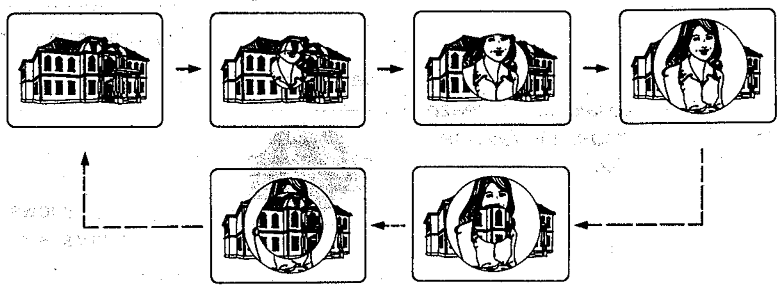
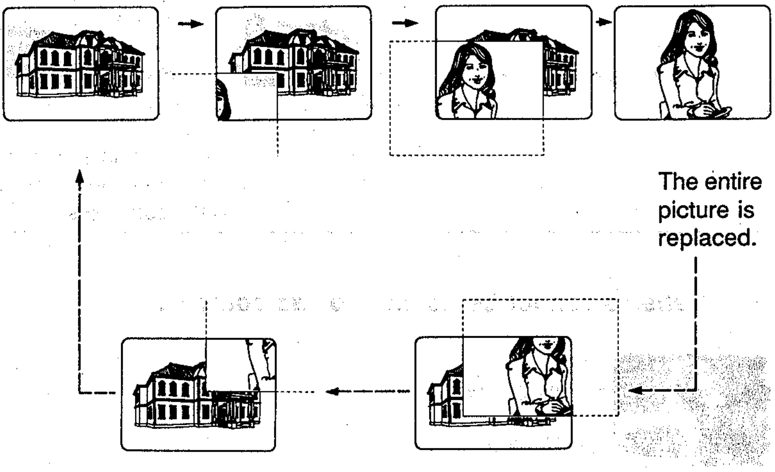
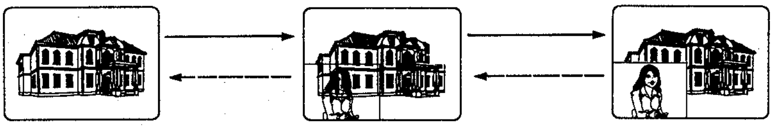
This chart illustrates the effects available with the KM-D600. For operations, refer to indicated pages.

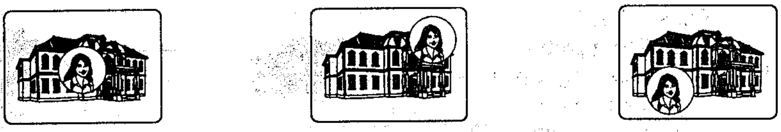
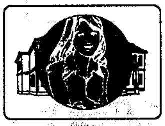
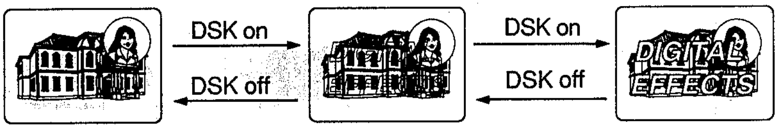
- To better understand all functions and operations, it is recommended that you practice all effects.
- Arrows indicate the direction of fader lever movement. (Except DSK)



Effect	Function	Resulting pictures	Page
Background effect Example 1	Switching with a *wipe effect* • Wipe pattern example ■	Example 1 	20
Example 2	Switching with a *mix effect*	Example 2 	21
Example 3	Switching with a *digital effect* (slide) • Wipe pattern example ■	Example 3 	22
Example 4	Switching with a *digital effect* (compress) • Compress pattern example ■	Example 4 	23

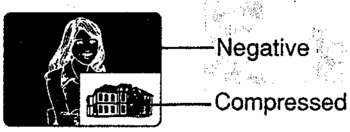
Effect	Function	Resulting pictures	Page
Keying effects Example 5	Luminance key (Keying a title) ● With a *mix effect*	Example 5 	25
Example 6	● With a *wipe effect* (Wipe pattern example ◨)	Example 6 	26
Example 7	● With a *digital effect* (slide) (Wipe pattern example ◨)	Example7 	27
Example 8	● With a *digital effect* (compress) and *mix effect*	Example 8  The location of characters can be freely shifted using the POSITIONER controls.	28
Example 9	Chroma key Combining two pictures (a figure and a landscape, for example) ● With a *mix effect*	Example 9  Wipes are also possible. (Digital effects cannot be applied.)	31

Effect	Function	Resulting pictures	Page
Keying effects Example 10	Pattern key (Inserting a picture) • Inserting a picture clipped with the preset pattern ◘ using a *mix effect*)	Example 10 	32
Example11	• Inserting a picture clipped with the preset pattern ◘ using a *wipe effect*.	Example 11 	33
Example 12	• Inserting with a *digital slide effect* (using the wipe pattern ■)	Example12  The entire picture is replaced.	34
Example 13	• Inserting a digitally compressed picture using a *mix effect*	Example 13 	35

Effect	Function	Resulting pictures	Page
Keying effects Example 14	• Moving the inserted picture to the desired position	Example 14  Here the inserted picture (digitally compressed) is moved with the POSITIONER controls.	38
Example15	• *Mosaic, paint, freeze, strobe,* and *reverse effects*	These effects can be applied to the picture keyed in with luminance and pattern key effects. Example 15  (This shows an example in which the pattern-keyed picture is reversed to negative.)	41
DSK effects Example 16	• Keying a title	Example16  DSK on DSK off DSK on DSK off DIGITAL EFFECTS (This shows an example in which a title is keyed in and out to the picture resulting from pattern-keying a digitally compressed picture.)	39

Different *digital effects* cannot be applied to two sources.

Example:

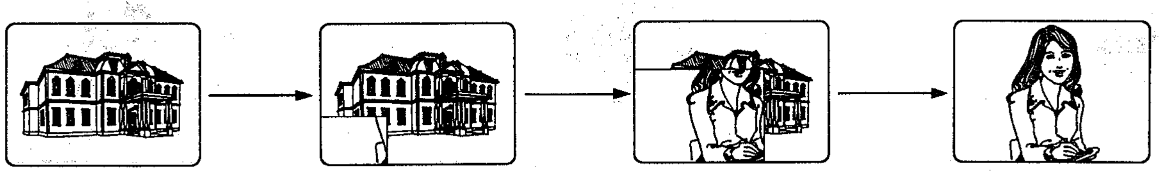


Impossible!

BACKGROUND EFFECTS (Replacing the PROGRAM bus signal with the PRESET/KEY bus signal)

With wipes

Program monitor screen (Selected wipe pattern: ▨)



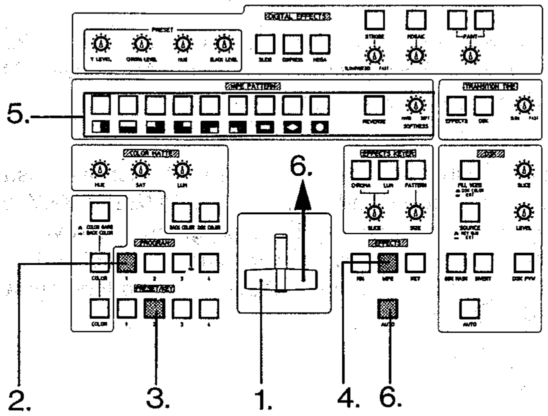
INPUT 1 signal

INPUT 2 signal

- In the following example INPUT 1 is replaced with INPUT 2.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

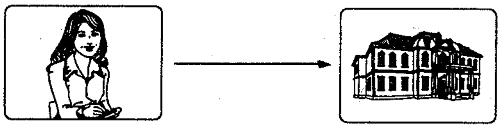
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the WIPE button.
5. Select a desired wipe pattern.*
6. Manual switching:
   Move the fader lever up; the picture will switch in relation to the movement of the lever.
   Automatic switching:
   Press the AUTO button; the picture will switch with the transition lasting for the preset time.*



[Preview monitor screen]

Before executing the effect

After completion of the effect



INPUT 2 signal

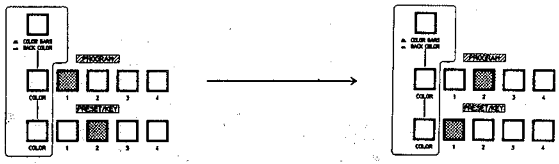
INPUT 1 signal

The preview monitor displays the result of the effect before the effect is executed. Upon completion of the effect, it displays the effect to be executed next. (The process in-between is not displayed.)

[Flip-flop operation of bus select buttons]

Before executing the effect

After completion of the effect

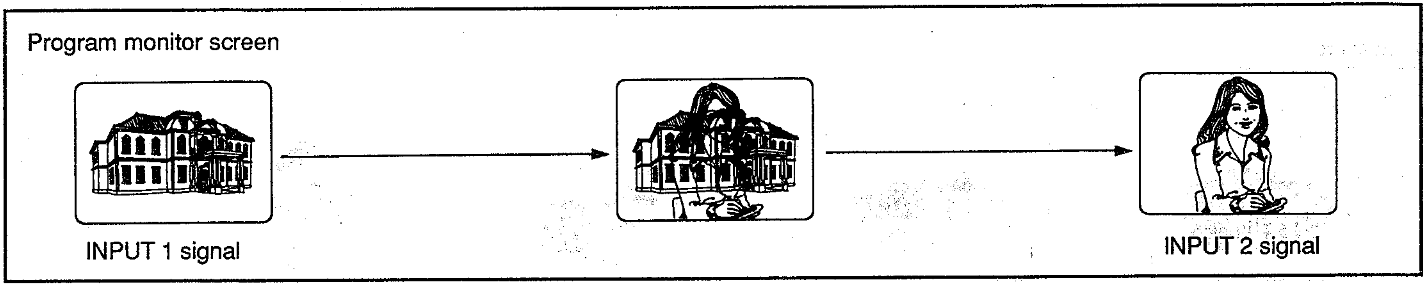


When switching is completed, the status of the PROGRAM and PRESET/KEY buses alternates automatically. This is referred to as a flip-flop operation.

- It is possible to apply *digital effects** such as mosaic, reverse, strobe and paint to the PRESET/KEY bus signal while switching is in progress. However, the effect will be lost when switching is completed. It is recommended that these effects be used together with *keying effects*.

*** Reference pages for related information**
- Wipe pattern selection (page 40)
- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Setting the transition time (page 40)

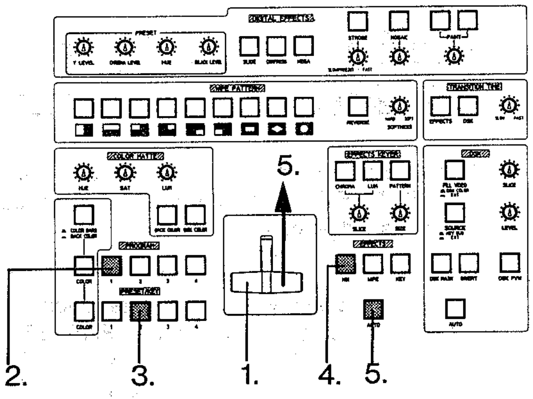
With mix


Program monitor screen
INPUT 1 signal
INPUT 2 signal

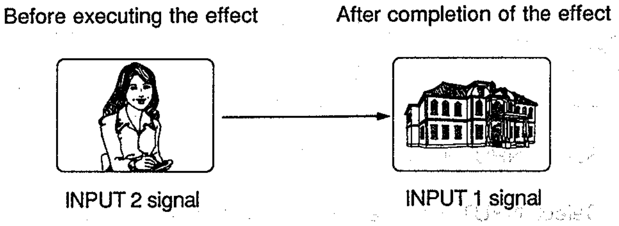
- In the following example INPUT 1 is replaced with INPUT 2.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the MIX button.
5. Manual switching:
   Move the fader lever up; the picture will switch in relation to the movement of the lever.
   Automatic switching:
   Press the AUTO button; the picture will switch with the transition lasting for the preset time.*

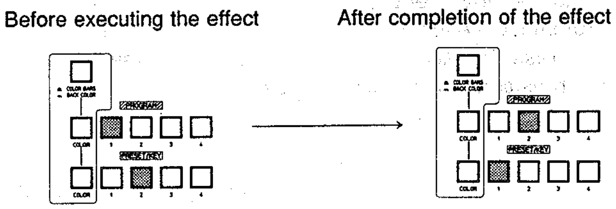


[Preview monitor screen]


Before executing the effect
After completion of the effect
INPUT 2 signal
INPUT 1 signal

The preview monitor displays the result of the effect before the effect is executed. Upon completion of the effect, it displays the effect to be executed next. (The process in-between is not displayed.)

[Flip-flop operation of bus select buttons]


Before executing the effect
After completion of the effect
PROGRAM
PRESET/KEY
COLOR

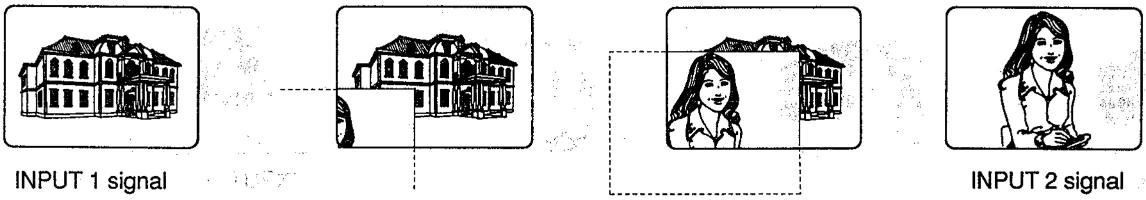
When switching is completed, the status of the PROGRAM and PRESET/KEY buses alternates automatically. This is referred to as a flip-flop operation.

- It is possible to apply *digital effects** such as mosaic, reverse, strobe and paint to the PRESET/KEY bus signal while switching is in progress. However, the effect will be lost when switching is completed. It is recommended that these effects be used together with *keying effects*.

*** Reference pages for related information**
- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Setting the transition time (page 40)

With *digital effects* (SLIDE)

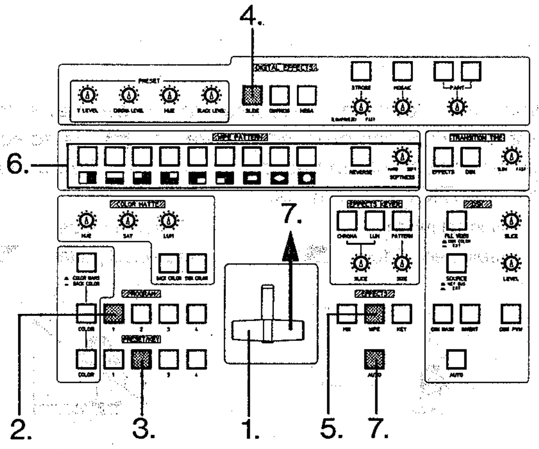
Program monitor screen (Selected wipe pattern: ▪)


INPUT 1 signal
INPUT 2 signal

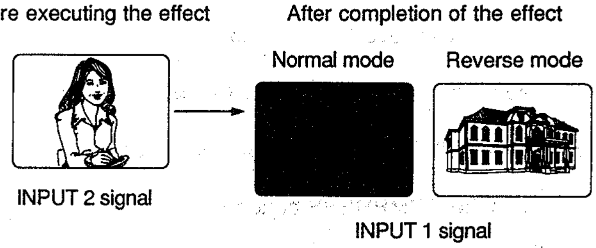
- In the following example INPUT 1 is replaced with INPUT 2.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the SLIDE button.
5. The WIPE button will light automatically.
   (The MIX button cannot be engaged.)
6. Select a desired wipe pattern.*
   (▬ , ▬ , and ▪ cannot be selected. If one of these buttons has been engaged, ▪ is automatically selected when the SLIDE button is pressed in step 4.)
7. Manual switching:
   Move the fader lever up; the picture will switch in relation to the movement of the lever.
   Automatic switching:
   Press the AUTO button; the picture will switch with the transition lasting for the preset time.*

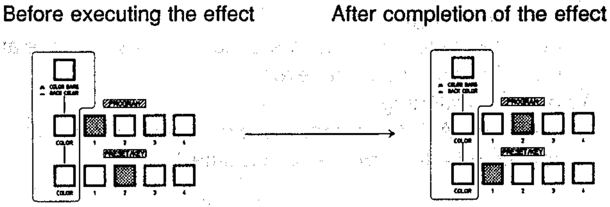


[Preview monitor screen]


Before executing the effect
After completion of the effect
Normal mode
Reverse mode
INPUT 2 signal
INPUT 1 signal

The preview monitor displays the result of the effect only before the SLIDE button is pressed in step 4. It is not possible to confirm the preview signal after the SLIDE button has been pressed. Check the preview monitor before pressing the SLIDE button (when the button's light is off.)

[Flip-flop operation of bus select buttons]


Before executing the effect
After completion of the effect

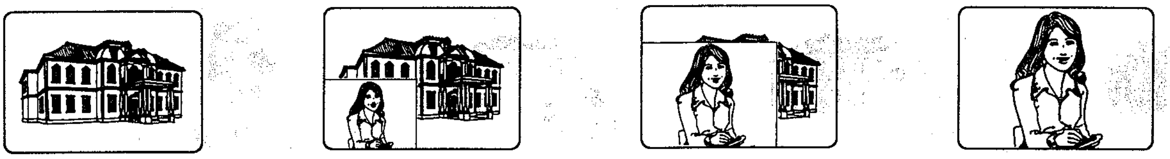
When switching is completed, the status of the PROGRAM and PRESET/KEY buses alternates automatically. This is referred to as a flip-flop operation.

- It is possible to apply *digital effects** such as *mosaic, reverse, strobe* and *paint* to the PRESET/KEY bus signal while switching is in progress. However, the effect will be lost when switching is completed. It is recommended that these effects be used together with *keying effects.*

*** Reference pages for related information**
- Wipe pattern selection (page 00)
- *Mosaic, reverse, strobe, and paint effects* (page 00)
- Setting the transition time (page 00)

With *digital effects* (COMPRESS)

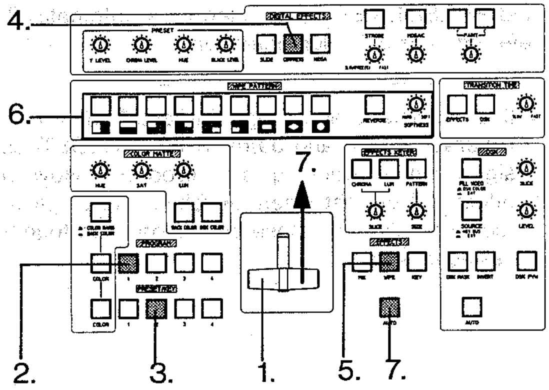
Program monitor screen (Selected wipe pattern: ◨)



- In the following example INPUT 1 is replaced with INPUT 2.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

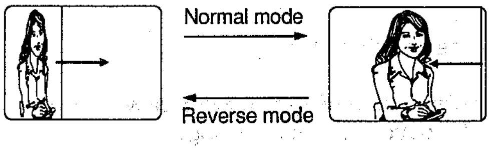
[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the COMPRESS button.
5. The WIPE button will light automatically. (The MIX button cannot be engaged.)
6. Select a desired compress pattern with the WIPE PATTERN button. See the column on the right.
7. Manual switching:
   Move the fader lever up; the picture will switch in relation to the movement of the lever.
   Automatic switching:
   Press the AUTO button; the picture will switch with the transition lasting for the preset time.*

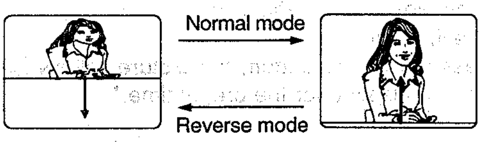


[Compress patterns]

◨ The wipe starts from the horizontally compressed picture. The start position can be moved right or left with the POSITIONER controls.

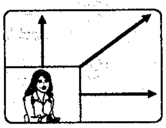


⬓ The wipe starts from the vertically compressed picture. The start position can be moved up or down with the POSITIONER controls.

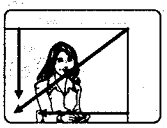


With other patterns selected, the wipe starts from the proportionally compressed picture. If ▭ is selected, the center position of the pattern can be moved up or down with the POSITIONER controls.

Normal mode (selected pattern: ◨)



Reverse mode (selected pattern: ◨)



(◇ and ▣ cannot be used. If one of these buttons has been engaged, ▭ is automatically selected when the COMPRESS button is pressed in step 4.)

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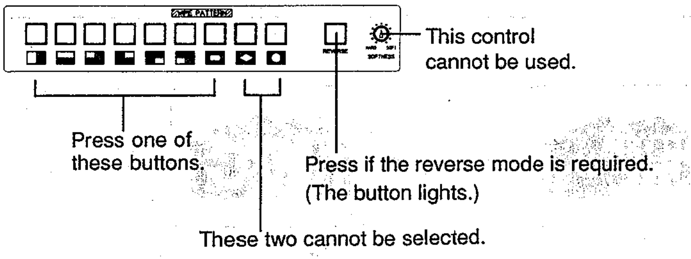
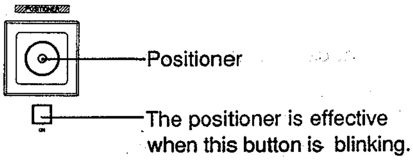
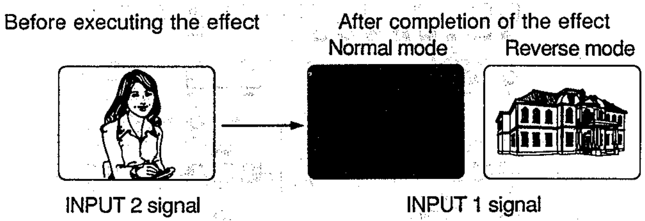
* **Reference pages for related information**
- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Setting the transition time (page 40)

[Selecting a compress pattern]


WIPE PATTERN
REVERSE
SOFTNESS
This control cannot be used.
Press one of these buttons.
Press if the reverse mode is required. (The button lights.)
These two cannot be selected.


POSITIONER
Positioner
The positioner is effective when this button is blinking.

[Preview monitor screen]


Before executing the effect
After completion of the effect
Normal mode
Reverse mode
INPUT 2 signal
INPUT 1 signal

The preview monitor displays the result of the effect only before the COMPRESS button is pressed in step 4. It is not possible to confirm the preview signal after the COMPRESS button has been pressed. Check the preview monitor before pressing the COMPRESS button (when the button's light is off.)

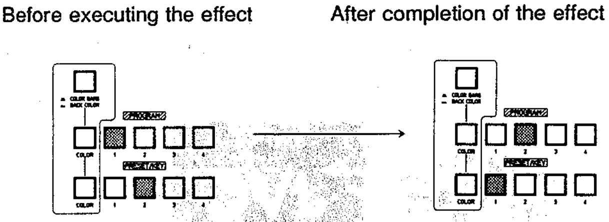
KEYING EFFECTS

Keying

The term "keying" refers to a type of special effect in which a portion of the PROGRAM bus signal is cut out (a video hole is produced) and replaced with another video signal. The signal used to cut the hole is called a "key source" and the signal filling in the hole is called a "fill video signal". Keying can be used to create multiple effects such as titling or picture synthesis. To meet all kinds of requirements, the KM-D600 offers three types of key.

1. Luminance key
   Ideal for inserting titles (lettering and graphics). The key source is the luminance (Y) signal of the input selected on the PRESET/KEY bus. The PROGRAM bus signal is cut out by the brighter portion of the key source Y signal, and replaced with the key source signal serving as a fill video signal. To produce this effect, it is necessary to prepare titles written in white on a black background. If colored titles are desired, use a very light color (a color with high luminance level) for clear *key effects*. Lighting is also important when shooting the titles for clear *key effects*.

[Flip-flop operation of bus select buttons]


Before executing the effect
After completion of the effect
PROGRAM
PRESET/KEY
COLOR

When switching is completed, the status of the PROGRAM and PRESET/KEY buses alternates automatically. This is referred to as a flip-flop operation.

- It is possible to apply *digital effects** such as *mosaic*, *reverse*, *strobe* and *paint* to the PRESET/KEY bus signal while switching is in progress. However, the effect will be lost when switching is completed. It is recommended that these effects be used together with *keying effects*.

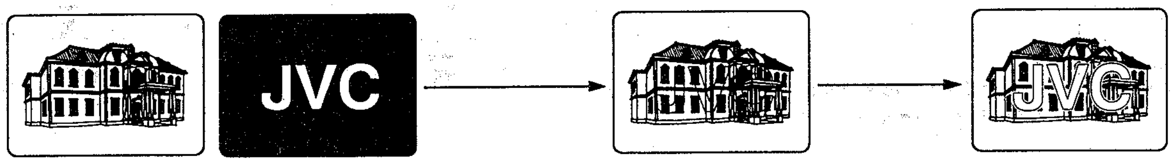
2. Chroma key
   A chroma key is used most commonly to combine a picture of a person and a picture of landscape to create the illusion that he or she is actually standing there. It uses a specific color to trigger the keying operation. With the KM-D600, blue is the chroma key color. The key source and the key fill signals are input to the rear panel CHROMA KEY R/G/B connectors. To synthesize a person and a landscape, the camera shoots the person against a blue background.
   This makes it possible to insert the person into the landscape on the PROGRAM bus.

3. Pattern key
   This key uses a wipe pattern, slide, or compress signal generated by the KM-D600 as the key source, and fits another picture in the pattern. The signal selected on the PRESET/KEY bus serves as the key fill signal.

KEYING IN A TITLE

Keying in a title by mixing

Program monitor screen

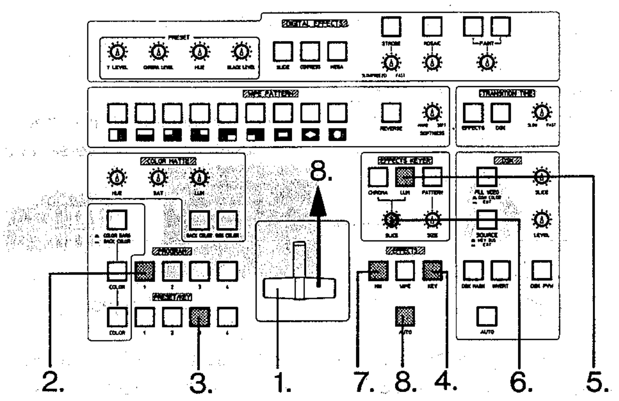


INPUT 1 signal INPUT 3 signal Title keyed in

- In the following example, a title on INPUT 3 is keyed into the picture on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

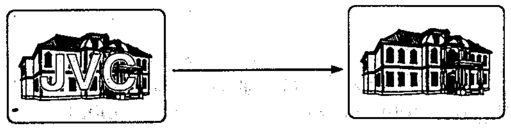
[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 3 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the LUM button.
6. Adjust the SLICE control so that the title appears on the INPUT 1 picture displayed on the preview monitor.
7. Press the MIX button.
8. Manual switching:
   Move the fader lever up; the title will appear in relation to the movement of the lever. To make it disappear, move the lever in the opposite direction.
   Automatic switching:
   Press the AUTO button; the title will appear within the preset time*. Press again to cancel it; it will disappear within the same time.



[Preview monitor screen]

Before executing the effect (corresponds to step 6) After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[*Reverse, strobe, mosaic, and paint effects *]**

It is possible to apply these *digital effects* to the title.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

[Masking*]

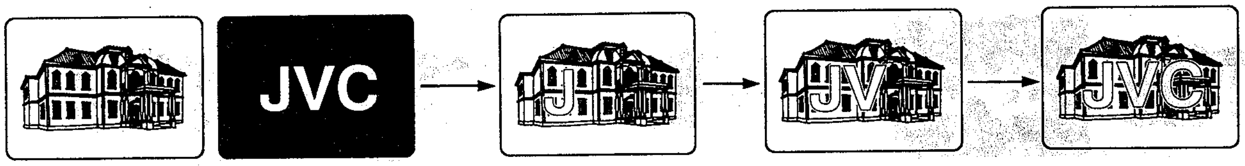
It is possible to mask (cover) the portion which should not be keyed using a wipe pattern.

*** Reference pages for related information**

- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Setting the transition time (page 40)
- Flip-flop operation (page 20)
- Masking (page 42)

Keying in a title by wiping

Program monitor screen (Selected wipe pattern: ◨)

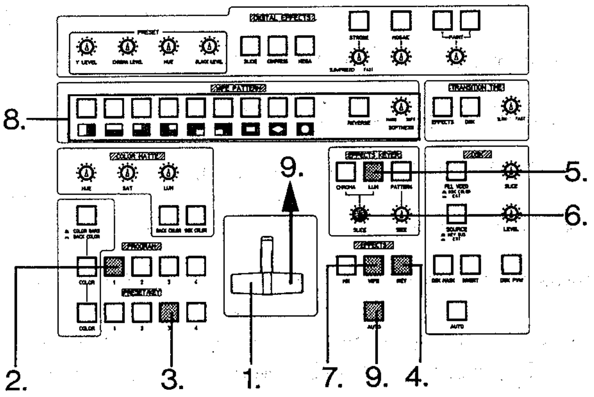


INPUT 1 signal INPUT 3 signal Title keyed in

- In the following example, a title on INPUT 3 is keyed into the picture on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

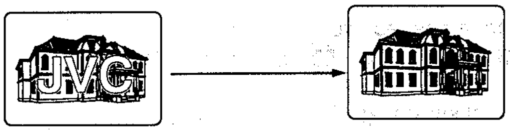
[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 3 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the LUM button.
6. Adjust the SLICE control so that the title appears on the INPUT 1 picture displayed on the preview monitor.
7. Press the WIPE button.
8. Select a wipe pattern*.
9. Manual switching:
   Move the fader lever up; the title will appear in relation to the movement of the lever. To make it disappear, move the lever in the opposite direction.
   Automatic switching:
   Press the AUTO button; the title will appear within the preset time*. Press again to cancel it; it will disappear within the same time.



[Preview monitor screen]

Before executing the effect (corresponds to step 6) After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[Reverse, strobe, mosaic, and paint effects*]

It is possible to apply these *digital effects* to the title.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

[Masking*]

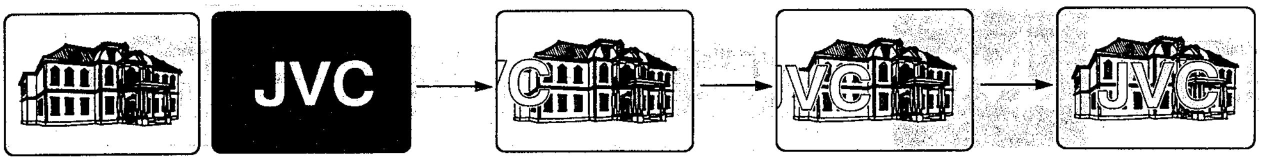
It is possible to mask (cover) the portion which should not be keyed using a wipe pattern.

*** Reference pages for related information**

- Wipe pattern selection (page 40)
- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Setting the transition time (page 40)
- Flip-flop operation (page 20)
- Masking (page 42)

Keying in a title with a digital slide effect

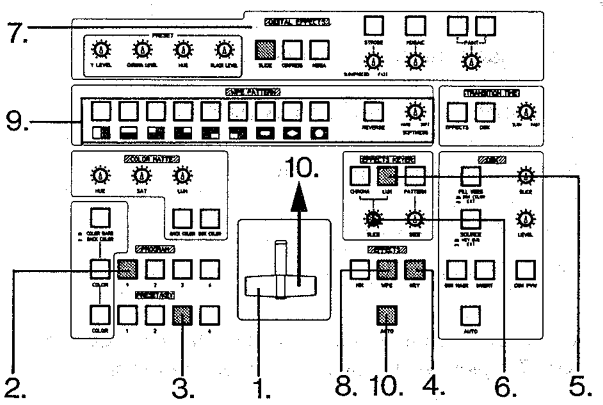
Program monitor screen (Selected wipe pattern: ◨)



INPUT 1 signal INPUT 3 signal Title keyed in

- In the following example, a title on INPUT 3 is keyed into the picture on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

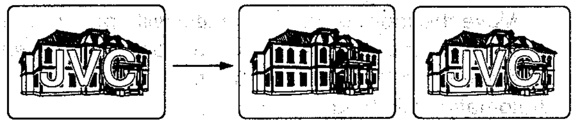


1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 3 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the LUM button.
6. Adjust the SLICE control so that the title appears on the INPUT 1 picture displayed on the preview monitor.
7. Press the SLIDE button.
8. The WIPE button will light automatically.
   (The MIX button cannot be engaged.)
9. Select a desired wipe pattern.*
   (▭ , ◘ , and ◘ cannot be selected.)
10. Manual switching:
    Move the fader lever up; the title will appear in relation to the movement of the lever. To make it disappear, move the lever in the opposite direction.
    Automatic switching:
    Press the AUTO button; the title will appear within the preset time.* To make it disappear, press the button again; the title will disappear within the same time.

[Preview monitor screen]

Before executing the effect (corresponds to step 6) After completion of the effect

Normal mode Reverse mode



The preview monitor displays the result of the effect only before the SLIDE button is pressed in step 7. It is not possible to confirm the preview signal after the SLIDE button has been pressed. Check the preview monitor before pressing the SLIDE button (when the button's light is off.)

[Reverse, strobe, mosaic, and paint effects*]

It is possible to apply these *digital effects* to the title.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

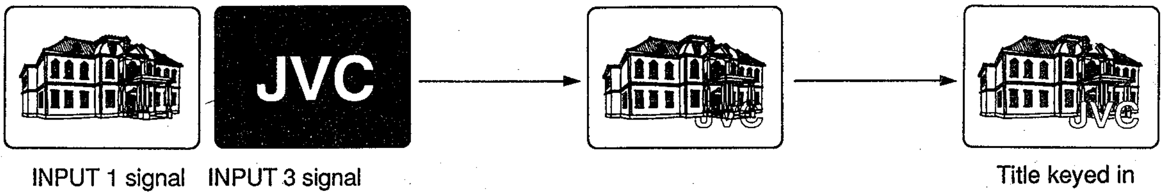
[Wipe direction in title switching off]

The same direction is maintained in switching on and off. For example, if the title wipes in from the left, it wipes out to the right. To make it disappear in the opposite direction, press the REVERSE button after the title has been keyed in.

*** Reference pages for related information**
- Wipe pattern selection (page 40)
- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Setting the transition time (page 40)
- Flip-flop operation (page 20)

Keying in a digitally compressed title by mixing

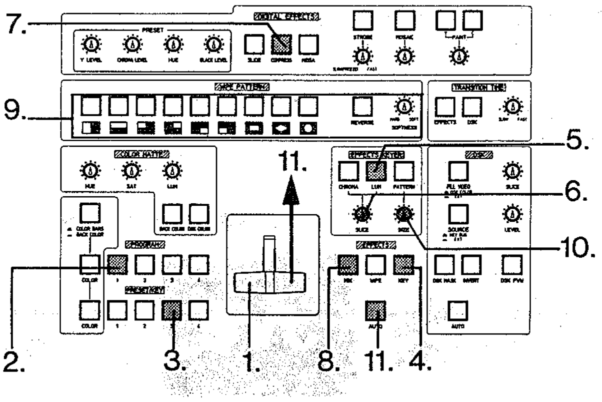
Program monitor screen


JVC
INPUT 1 signal
INPUT 3 signal
Title keyed in

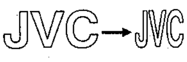
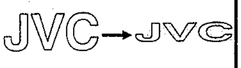
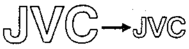
- In the following example, a title on INPUT 3 is keyed into the picture on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

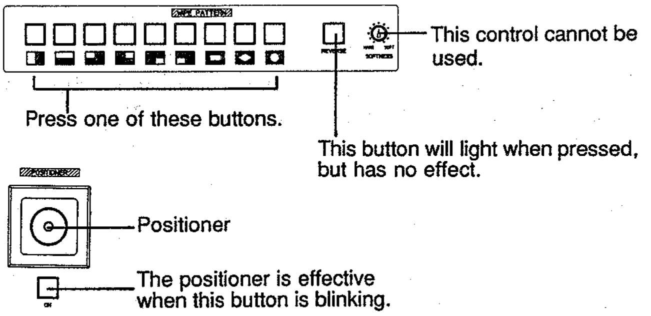
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 3 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the LUM button.
6. Adjust the SLICE control so that the title appears on the INPUT 1 picture displayed on the preview monitor.
7. Press the COMPRESS button.
   The PATTERN button will blink, indicating that the compression ratio can be varied using the SIZE control.
8. Press the MIX button.
9. Select a desired compress pattern with the WIPE PATTERN button.
   See the column on the right.
10. Adjust the size of the title with the SIZE control.
11. Manual switching:
    Move the fader lever up; the title will appear in relation to the movement of the lever. To make it disappear, move the lever in the opposite direction.
    Automatic switching:
    Press the AUTO button; the title will appear within the preset time*. To make it disappear, press the button again; the title will disappear within the same preset time.


7.
9.
11.
5.
6.
10.
2.
3.
1.
8.
11.
4.

[Compress patterns]

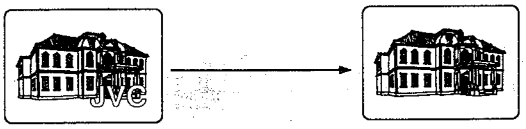
◨	The title is compressed horizontally. It can be moved right or left with the POSITIONER controls.	
⬓	The title is compressed vertically. It can be moved up or down with the POSITIONER controls.	
	With other patterns selected, the title is proportionally compressed. If ▭ , ◘ , or ▣ is selected, the title can be positioned at any location with the POSITIONER controls. These three patterns produce the same result.	

[Selecting a compress pattern]


This control cannot be used.
Press one of these buttons.
This button will light when pressed, but has no effect.
Positioner
The positioner is effective when this button is blinking.

*** Reference pages for related information** • Setting the transition time (page 40)

[Preview monitor screen]



Before executing the effect (corresponds to step 6)

After completion of the effect

The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[*Reverse, strobe, mosaic, and paint effects]*

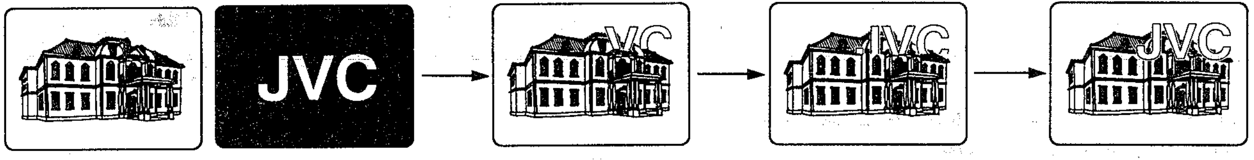
It is possible to apply these *digital effects* to the title.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

Keying in a digitally compressed title by wiping

Program monitor screen (Selected wipe pattern: ◪)



INPUT 1 signal INPUT 3 signal

Title keyed in

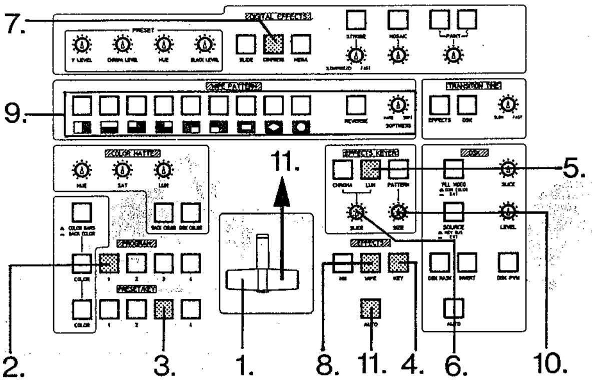
- In the following example, a title on INPUT 3 is keyed into the picture on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings the settings when the power is switched on are referred to.

[Operation]

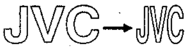
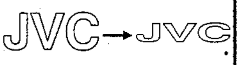
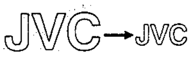
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 3 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the LUM button.
6. Adjust the SLICE control so that the title on INPUT 3 appears on the INPUT 1 picture displayed on the preview monitor.
7. Press the COMPRESS button.
   The PATTERN button will blink, indicating that the compression ratio can be varied using the SIZE control.
8. Press the WIPE button.
9. Select a desired compress/wipe pattern with the WIPE PATTERN buttons. (See the chart on the next page.)
   The selected wipe pattern determines both the compress and wipe patterns. They cannot be designated separately.
10. Adjust the size of the title with the SIZE control.
    If the reverse mode has been selected for the wipe pattern in step 9, it is not possible to check the preview signal. Cancel the reverse mode for checking.
11. Manual switching:
    Move the fader lever up; the title will appear in relation to the movement of the lever. To make it disappear, move the lever in the opposite direction.
    Automatic switching:
    Press the AUTO button; the title will appear within the preset time*. To make it disappear, press the button again; the title will disappear within the same preset time.

*** Reference pages for related information**

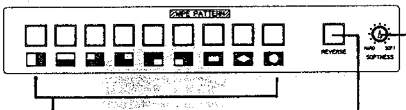
- Setting the transition time (page 40)
- Flip-flop operation (page 20)
- *Mosaic, reverse, strobe, and paint effects* (page 41)



[Compress patterns]

◨	The title is compressed horizontally. It can be moved right or left with the POSITIONER controls.	
⬓	The title is compressed vertically. It can be moved up or down with the POSITIONER controls.	
	With other patterns selected, the title is proportionally compressed. If ▭ , ◘ , or ▣ is selected, the title can be positioned at any location with the POSITIONER controls. These three patterns produce the same result.	

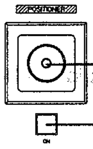
[Selecting a compress/wipe pattern]



This control is effective only for the wipe pattern.

Press one of these buttons.

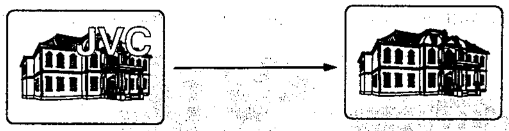
The reverse mode is effective only for the wipe pattern. (No effect on the compress pattern.)



Each time the button is pressed, it changes its status in this order: blinking, steady light, and off.

Blinking:	The positioner is effective for the compress pattern.
Steady light:	The positioner is effective for both the compress and wipe patterns.
Light off:	The positioner has no effect.

[Preview monitor screen]



Before executing the effect (corresponds to step 6)

After completion of the effect

The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

Note
In the reverse mode, the preview monitor does not display the result of the effect. To check the preview signal, cancel the reverse mode.

[*Reverse, strobe, mosaic, and paint effects]**
It is possible to apply these *digital effects* to the title.

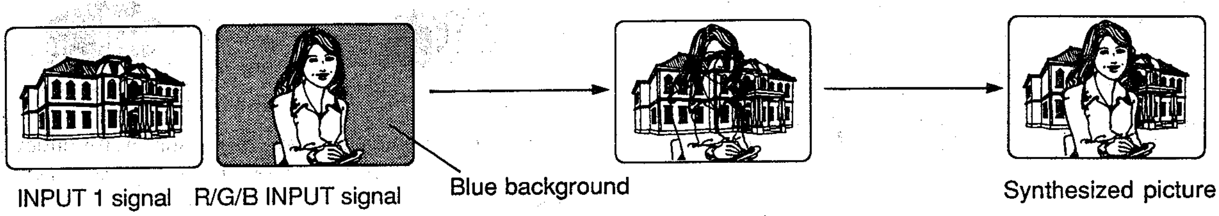
[Operation of bus select buttons]
Flip-flop operation* does not take place.

---

* **Reference pages for related information**
- *Mosaic, reverse, strobe, and paint effects* (page 41)
- Flip-flop operation (page 20)

CHROMA KEYS (Synthesizing a person and a landscape)

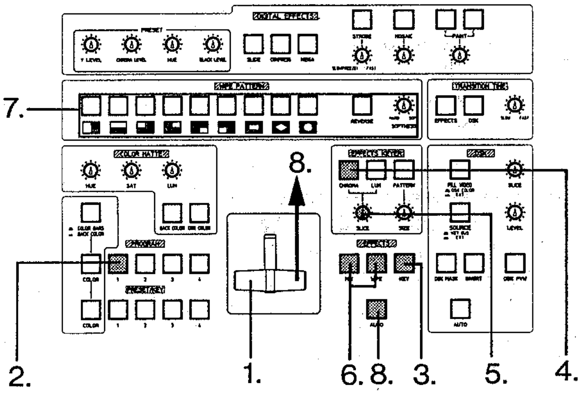
Program monitor screen (Example of chroma key mixing)



- In the following example, a signal input to the CHROMA KEY R/G/B connectors (a person) is keyed into the signal on INPUT 1 (a landscape).
- For chroma keying, it is necessary to shoot the subject key source against a blue background (cloth or wall).
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

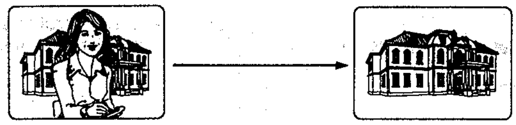
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Press the KEY button.
4. Press the CHROMA button.
5. Adjust the SLICE control so that the person appears on the INPUT 1 picture displayed on the preview monitor.
6. Select a desired effect mode.
   Press the MIX button to execute keying in/out by mixing.
   Press the WIPE button to execute keying in/out with a *wipe effect*.
7. Select a wipe pattern* if the wipe mode was selected in step 6.
8. Manual switching:
   Move the fader lever up; keying in will take place in relation to the movement of the lever. To return to the normal INPUT 1 picture, move the lever in the opposite direction.
   Automatic switching:
   Press the AUTO button; keying in will take place within the preset time*. Press again to return to the normal INPUT 1 picture: keying out will take place within the same time.



[Preview monitor screen]

Before executing the effect (corresponds to step 5)

After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[Masking*]

It is possible to mask (cover) the portion which should not be keyed using a wipe pattern.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

Notes

- To avoid shadows, use at least two lights to illuminate the blue background in the key source. Also, ensure that the subject in front of the blue background does not wear any blue clothing or accessories as anything blue will be replaced by the background picture.
- *Digital effects* cannot be applied.

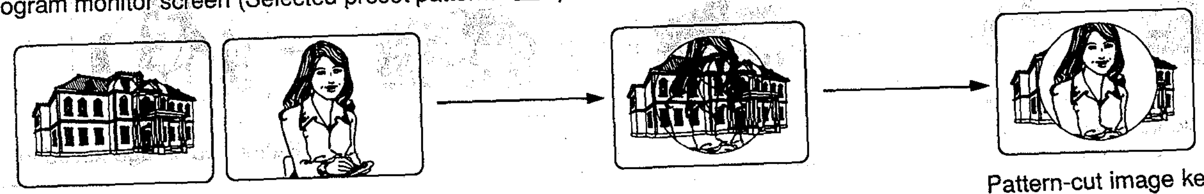
*** Reference pages for related information**

- Wipe pattern selection (page 40)
- Setting the transition time (page 40)
- Flip-flop operation (page 20)
- Masking (page 42)

PATTERN KEYS (Fitting a pattern-cut image into a background picture)

Pattern keying by mixing

Program monitor screen (Selected preset pattern: ◘)



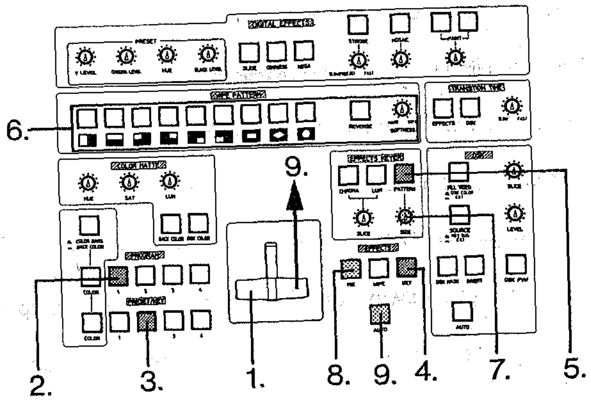
INPUT 1 signal INPUT 2 signal

Pattern-cut image keyed in

- In the following example, the INPUT 2 signal is keyed into the INPUT 1 signal.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

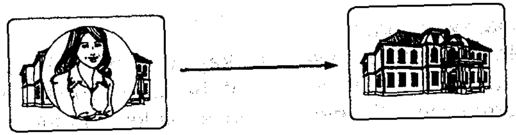
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the PATTERN button.
6. Select a preset pattern with the corresponding WIPE PATTERN button.*
7. Adjust the SIZE control to set the size of the pattern while referring to the preview monitor.
8. Press the MIX button.
9. Manual switching:
   Move the fader lever up; keying in will take place in relation to the movement of the lever. To return to the normal INPUT 1 picture, move the lever in the opposite direction.
   Automatic switching:
   Press the AUTO button; keying in will take place within the preset time*. Press again to return to the normal INPUT 1 picture; keying out will take place within the same time.



[Preview monitor screen]

Before executing the effect (corresponds to step 7)

After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[*Reverse, strobe, mosaic, and paint effects*]**

It is possible to apply these *digital effects* to the signal selected on the PRESET/KEY bus.

[Operation of bus select buttons]

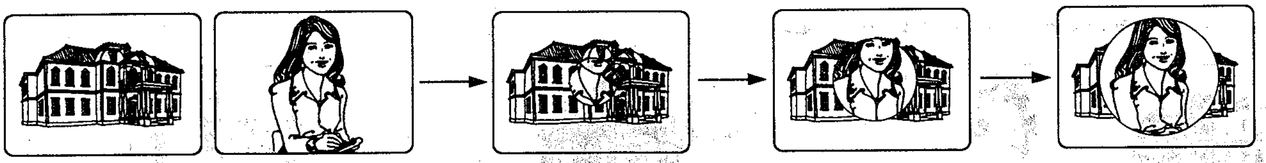
Flip-flop operation* does not take place.

*** Reference pages for related information**

- Wipe pattern selection (page 40)
- Setting the transition time (page 40)
- *Reverse, strobe, mosaic and paint effects* (page 41)
- Flip-flop operation (page 20)

Pattern keying by wiping

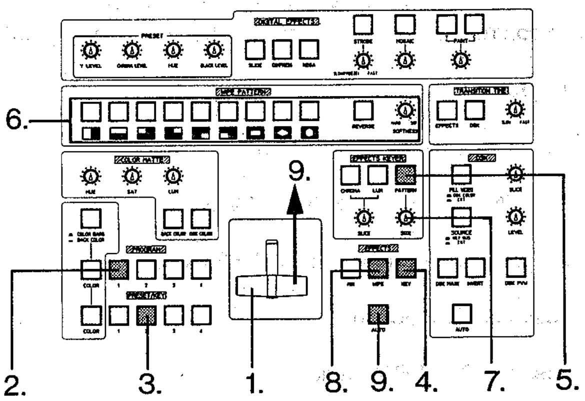
Program monitor screen (Selected preset pattern: ▣)



- In the following example, the INPUT 2 signal is keyed into the signal on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

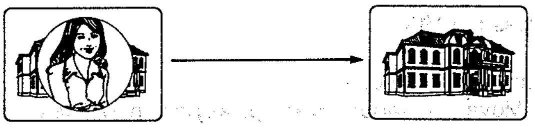
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the PATTERN button.
6. Select a preset/wipe pattern with the corresponding WIPE PATTERN button.*
   (The preset and wipe patterns cannot be designated separately.)
7. Adjust the SIZE control to set the size of the pattern while referring to the preview monitor.
8. Press the WIPE button.
9. Manual switching:
   Move the fader lever up; keying in will take place in relation to the movement of the lever. To return to the normal INPUT 1 picture, move the lever in the opposite direction.
   Automatic switching:
   Press the AUTO button; keying in will take place within the preset time*. Press again to return to the INPUT 1 picture; keying out will take place within the same time.



[Preview monitor screen]

Before executing the effect (corresponds to step 7)

After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[Reverse, strobe, mosaic, and paint effects*]

It is possible to apply these *digital effects* to the signal selected on the PRESET/KEY bus.

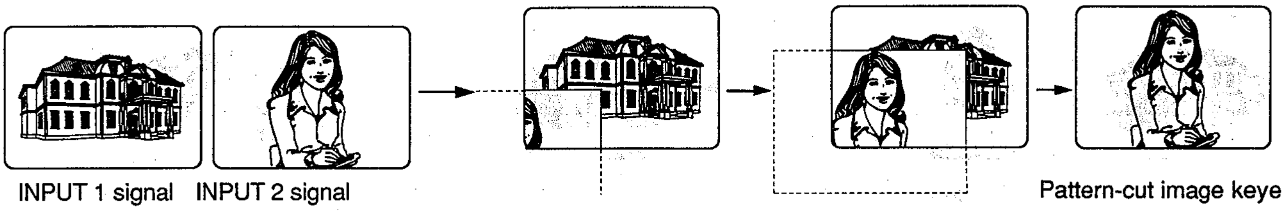
[Operation of bus select buttons]

Flip-flop operation* does not take place.

*** Reference pages for related information**
- Wipe pattern selection (page 40)
- Setting the transition time (page 40)
- *Reverse, strobe, mosaic and paint effects* (page 41)
- Flip-flop operation (page 20)

Keying in an entire picture by sliding

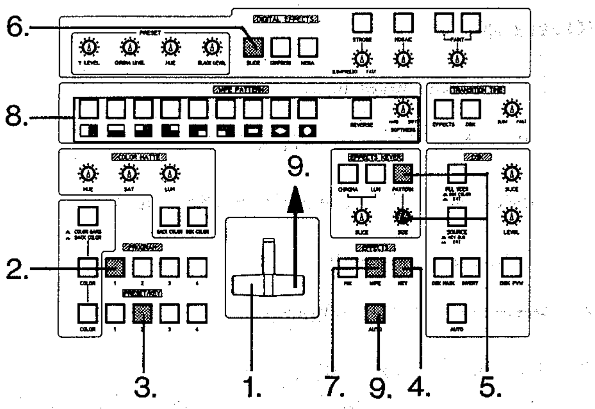
Program monitor screen (Selected preset pattern: ▪)



- In the following example, the signal on INPUT 2 is keyed into the signal on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the PATTERN button with the SIZE control turned fully clockwise.
6. Press the SLIDE button.
7. The WIPE button will light automatically.
   (The MIX button cannot be engaged.)
8. Select a wipe pattern with the corresponding WIPE PATTERN button.*
   (▭ , ▭ , and ▣ cannot be selected.)
9. Manual switching:
   Move the fader lever up; keying in will take place in relation to the movement of the lever. To return to the normal INPUT 1 picture, move the lever in the opposite direction.
   Automatic switching:
   Press the AUTO button; keying in will take place within the preset time*. Press again to return to the INPUT 1 picture; keying out will take place within the same time.



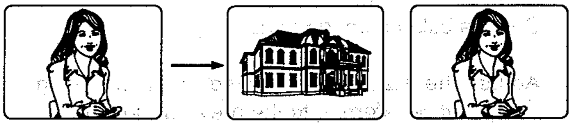
[Preview monitor screen]

Before executing the effect (corresponds to step 5)

After completion of the effect

Normal mode

Reverse mode



The preview monitor displays the result of the effect only before the SLIDE button is pressed in step 6. It is not possible to confirm the preview signal after the SLIDE button has been pressed. Check the preview monitor before pressing the SLIDE button (when the button's light is off.)

[Reverse, strobe, mosaic, and paint effects*]

It is possible to apply these *digital effects* to the signal selected on the PRESET/KEY bus.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

[Sliding direction in keying out]

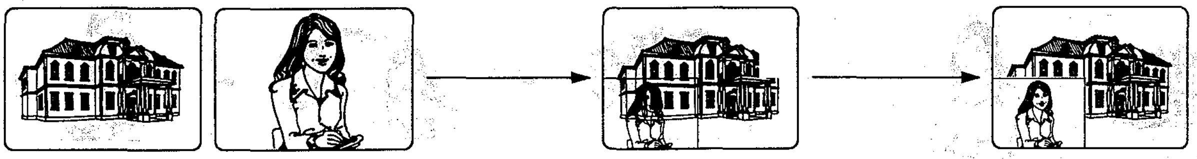
The same direction is maintained in keying in and out. Therefore, if the keyed-in picture slides in from the lower left corner as in the example shown, it will slide out to the upper right corner. To slide it out in the opposite direction (to the lower left corner in the example), press the REVERSE button after the entire picture has been keyed in.

*** Reference pages for related information**

- Wipe pattern selection (page 40)
- Setting the transition time (page 40)
- *Reverse, strobe, mosaic and paint effects* (page 41)
- Flip-flop operation (page 20)

Keying in a digitally compressed picture by mixing

Program monitor screen (Selected preset pattern: ◨)

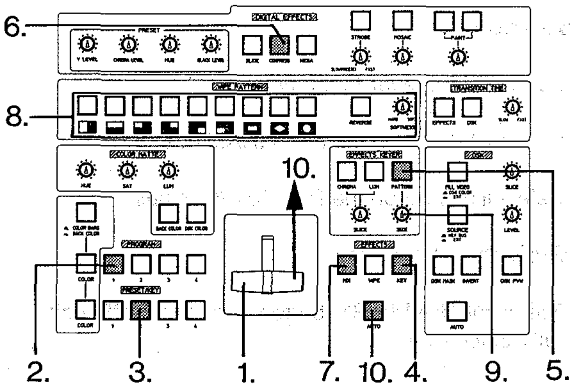


INPUT 1 signal INPUT 2 signal Compressed picture keyed in

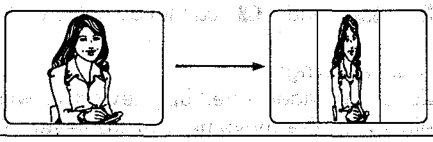
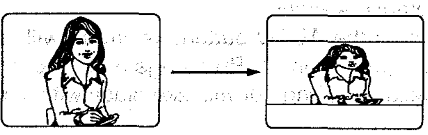
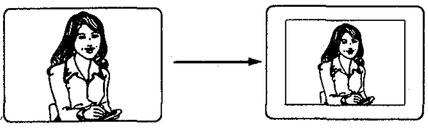
- In the following example, the signal on INPUT 2 is keyed into the signal on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the PATTERN button.
6. Press the COMPRESS button.
   The PATTERN button will blink, indicating that the compression ratio can be varied using the SIZE control.
7. Press the MIX button.
8. Select a desired compress pattern with the WIPE PATTERN button.
   See the column on the right.
9. Adjust the size of the keyed-in picture with the SIZE control while referring to the preview monitor.
10. Manual switching:
    Move the fader lever up; keying in will take place in relation to the movement of the lever. To return to the normal INPUT 1 picture, move the lever in the opposite direction.
    Automatic switching:
    Press the AUTO button; keying in will take place within the preset time*. To return to the normal INPUT 1 picture, press the button again; keying out will take place within the same preset time.



[Compress patterns]

◨	The picture is compressed horizontally. It can be moved right or left with the POSITIONER controls. 
⬓	The picture is compressed vertically. It can be moved up or down with the POSITIONER controls. 
	With other patterns selected, the picture is proportionally compressed. If ▭ , ◇ , or ▣ is selected, the picture can be positioned at any location with the POSITIONER controls. These three patterns produce the same result. 

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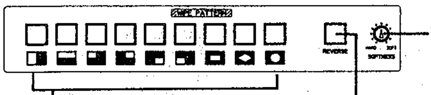
* **Reference pages for related information** • Setting the transition time (page 40)

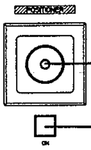
[Selecting a compress pattern]



This control cannot be used.

Press one of these buttons.

This button will light when pressed, but has no effect.



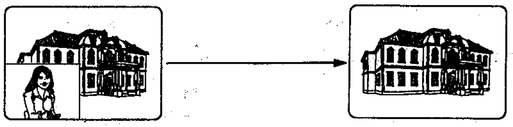
Positioner

The positioner is effective when this button is blinking.

[Preview monitor screen]

Before executing the effect (corresponds to step 9)

After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

[Reverse, strobe, mosaic, and paint effects*]

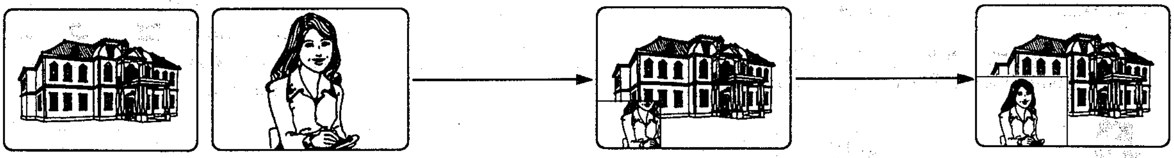
It is possible to apply these *digital effects* to the signal selected on the PRESET/KEY bus.

[Operation of bus select buttons]

Flip-flop operation* does not take place.

Keying in a digitally compressed picture by wiping

Program monitor screen (Selected preset pattern: ■)



INPUT 1 signal INPUT 2 signal

Compressed picture keyed in

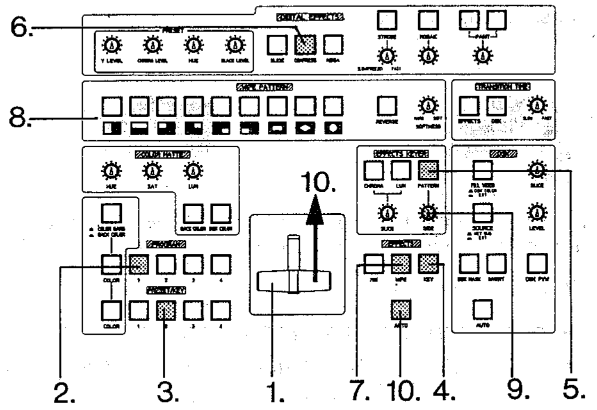
- In the following example the signal on INPUT 2 is keyed into the signal on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

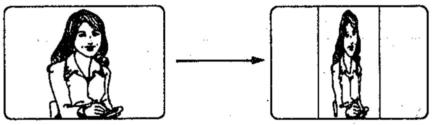
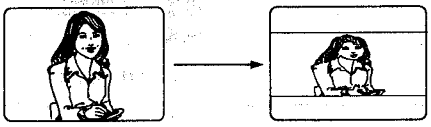
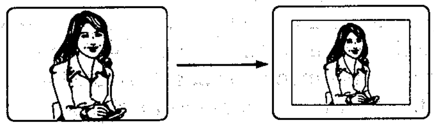
1. Set the fader lever to the bottom.
2. Select INPUT 1 on the PROGRAM bus.
3. Select INPUT 2 on the PRESET/KEY bus.
4. Press the KEY button.
5. Press the PATTERN button.
6. Press the COMPRESS button.
   The PATTERN button will blink, indicating that the compression ratio can be varied using the SIZE control.
7. Press the WIPE button.
8. Select a desired compress pattern with the WIPE PATTERN button.
   See the next page.
9. Adjust the size of the keyed-in picture with the SIZE control while referring to the preview monitor.
   If the reverse mode has been selected for the wipe pattern in step 8, it is not possible to check the preview signal. Cancel the reverse mode for checking.
10. Manual switching:
    Move the fader lever up; keying in will take place in relation to the movement of the lever. To return to the normal INPUT 1 picture, move the lever in the opposite direction.
    Automatic switching:
    Press the AUTO button; keying in will take place within the preset time*. To return to the normal INPUT 1 picture, press the button again; keying out will take place within the same preset time.

*** Reference pages for related information**

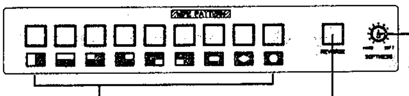
- Setting the transition time (page 40)
- *Reverse, strobe, mosaic and paint effects* (page 41)
- Flip-flop operation (page 20)



[Compress patterns]

◨	The picture is compressed horizontally. It can be moved right or left with the POSITIONER controls. 
⬓	The picture is compressed vertically. It can be moved up or down with the POSITIONER controls. 
	With other patterns selected, the picture is proportionally compressed. If ▭ , ▭ or ◘ is selected, the picture can be positioned at any location with the POSITIONER controls. These three patterns produce the same result. 

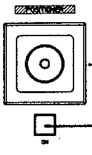
[Selecting a compress pattern]



Press one of these buttons.

This button is effective only for the wipe pattern. (No effect on the compress pattern.)

This control is effective only for the wipe pattern.



Positioner

Each time the button is pressed, it changes its status in this order: blinking, steady light, and off.

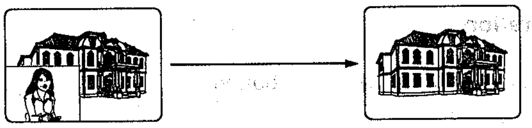
Blinking:	The positioner is effective for the compress pattern (if ◨ , ⬓ , ▭ , ▭ , or ◘ is selected).
Steady light:	The positioner is effective for both the compress and wipe patterns (if ▭ , ▭ , or ◘ is selected).
Light off:	The positioner has no effect.

The next page describes one specific application of the positioner for your reference.

[Preview monitor screen]

Before executing the effect (corresponds to step 9)

After completion of the effect



The preview monitor displays the result of the effect before the effect is executed. (The process in-between is not displayed.)

Note

In the reverse mode, the preview monitor does not display the result of the effect. To check the preview signal, cancel the reverse mode.

[*Reverse, strobe, mosaic, and paint effects**]

It is possible to apply these *digital effects* to the signal selected on the PRESET/KEY bus.

[Operation of bus select buttons]

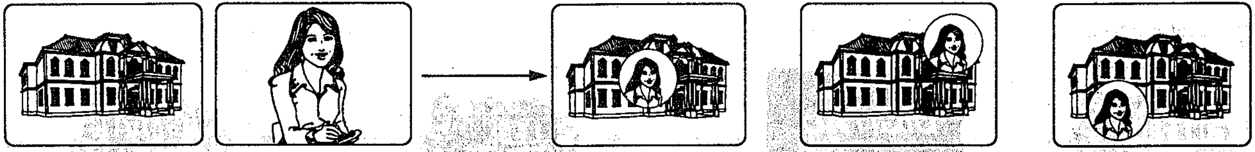
Flip-flop operation* does not take place.

*** Reference pages for related information**
- *Mosaic, reverse, strobe, and paint effects* (page 40)
- Flip-flop operation (page 20)

Using the POSITIONER controls

The keyed-in digitally compressed picture can be moved to any location with the positioner.

Program monitor screen (Selected preset pattern: ▣)



INPUT 1 signal INPUT 2 signal Keyed-in picture located at different positions

- In the following example, the signal on INPUT 2 is keyed into the signal on INPUT 1.
- In this example, the fader lever is moved from down to up. Moving the lever from up to down produces the same effect.
- The control panel's initial settings when the power is switched on are referred to.

[Operation]

Follow the steps below after completing step 7 on page 36.

8. Select a compress pattern.
   Select from among these three: ▭ , ◘ , and ▣ .

9. Move the fader lever fully up.
   Keying will be completed.

10. Adjust the compression ratio with the SIZE control while referring to the program monitor.
    The compress pattern is the same with any of the three patterns selected. Proportional compression is applied as illustrated on the right. ▭◘▣

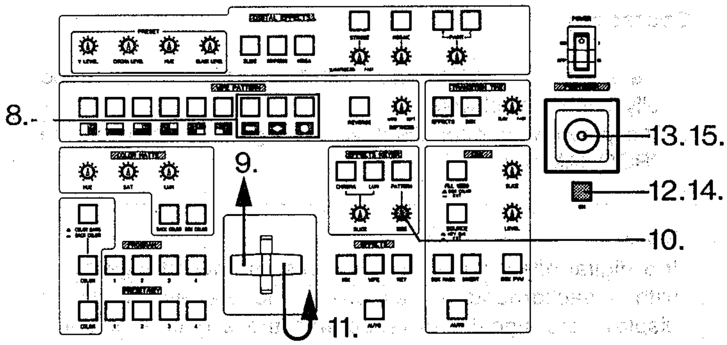
11. Move the fader lever fully down and adjust the size of the wipe pattern by gradually moving the fader lever. (Check on the program monitor.)

12. Press the POSITIONER button once.
    The button will blink.

13. Adjust the location of the compressed image within the wipe pattern with the POSITIONER joystick. (Check on the program monitor.) The wipe pattern itself will not move.

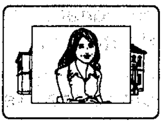
14. Press the POSITIONER button once again.
    The button's light will be steady.

15. Adjust the location of the wipe pattern with the POSITIONER joystick. The inside image will follow the wipe pattern. (Check on the program monitor.)

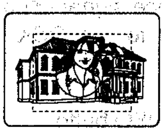


Program monitor

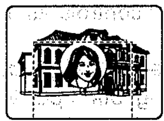
10. Compressed with the SIZE control.



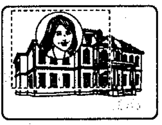
11. Positioned with the fader lever.



13. Inside image positioned with the POSITIONER joystick.



15. Positioned with the POSITIONER joystick.



[Reverse, strobe, mosaic, and paint effects*]

It is possible to apply these *digital effects* to the compressed picture.

[Softness effect*]

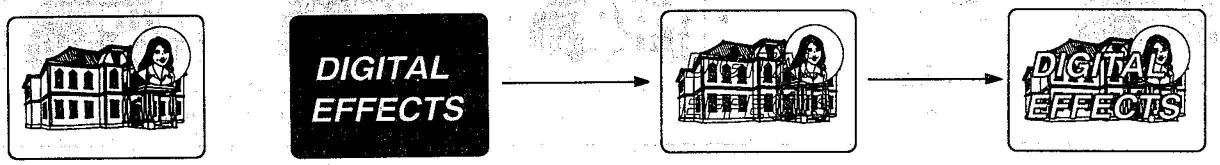
The wipe pattern can be made softer or sharper with the SOFTNESS control.

*** Reference pages for related information**
- *Reverse, strobe, mosaic and paint effects* (page 41)
- Softness effect (page 40)

DSK (DOWNSTREAM KEYER) TITLING

DSK is a key applied immediately before the program signal is output from the PGM OUT connector. The KM-D600 is capable of adding this key effect to a program signal already composed of background or key effects.

Program monitor screen



Picture with key effects

Signal applied to DSK R/G/B/KEY connectors

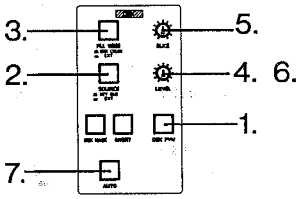
DSK executed

[Operation]

1. Press the DSK PVW button with the SLICE control turned fully counterclockwise.
   The preview monitor displays the signal selected on the PROGRAM bus.

> **Note**
> If a digital effect (slide or compress) is applied together with a background or key effect, the preview monitor displays the signal processed with these effects or the signal selected on the PRESET/KEY bus. This is not a malfunction.

2. Select a key source with the SOURCE button.
   KEY BUS (light on): To use the luminance signal (Y) of the input signal selected on the PRESET/KEY bus. (Cannot be selected If the luminance key is already applied to the program signal.)
   EXT (light off): To use the luminance signal (Y) of the video signal input to the DSK KEY connector.
3. Select a fill video signal with the FILL VIDEO button.
   DSK COLOR (light on): To use the DSK color preset by the COLOR MATTE controls as the fill video signal.
   EXT (light off): To use the video signal produced by the R/G/B signals input to the DSK R/G/B INPUT connectors.
4. Turn the LEVEL control fully clockwise.
5. Adjust the SLICE control while referring to the preview monitor so that the title appears as intended.
6. Adjust the mixing level of the title with the LEVEL control.
7. Press the AUTO button. (The button will blink.)
   The title will appear on the program monitor within the preset time*. Press this button to switch off the title within the same preset time.



[Masking]

It is possible to mask the area where keying should not take place with a wipe pattern. This effect is not available while the PATTERN button in the EFFECTS KEYER section is lit or blinking.

- To obtain this effect, follow the steps below before pressing the AUTO button in step 7 above.

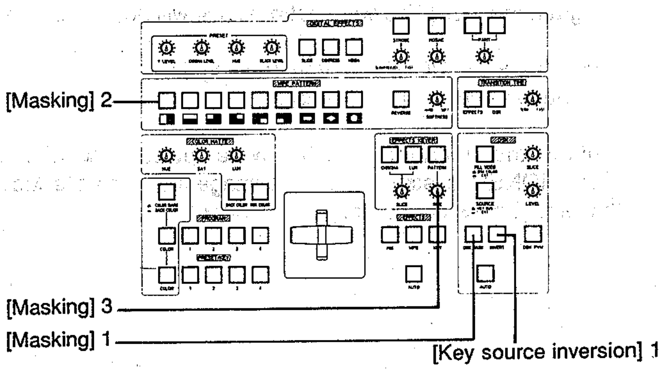
(1) Press the DSK MASK button. (The button lights.)
(2) Select a masking pattern with the corresponding WIPE PATTERN button.*
(3) Set the size of the pattern with the SIZE control.

[Key source inversion]

Take advantage of this function when keying in lettering or graphics written in black on a white background.

- To obtain this effect, follow the step below before adjusting the SLICE control in step 5 above.

(1) Press the INVERT button. (The button lights.)



> **Note**
> Internal switching allows the signal input to the DSK R/G/B INPUT connectors to be used as the key source when the EXT mode is selected. For this modification, consult an authorized JVC service agent.

Refer to the section 2.4
of this service manual.

*** Reference pages for related information**
- Setting the transition time (page 40)
- Wipe pattern selection (page 40)
- Setting DSK colors (page 41)

WIPE PATTERN SELECTION AND SOFTNESS EFFECT

The following procedure applies when a wipe pattern is selected for the following effects.
① *Background effects* by wiping
② *Background effects* by sliding
③ *Keying effects* by wiping
④ *Keying effects* by sliding
⑤ DSK masking
⑥ *Keying effects* masking

[Procedure]

1. Press the button above the desired wipe pattern symbol. The button will light.

2. Select the direction of pattern movement with the REVERSE button.

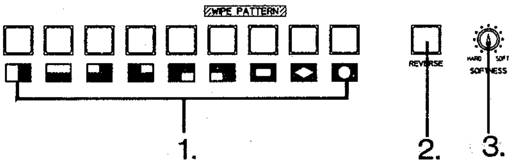
   Normal mode (light off): The wipe pattern moves in the direction in which the white area increases.

   Reverse mode (light on): The wipe pattern moves in the direction in which the black area increases.

3. Adjust the sharpness of the wipe pattern edge with the SOFTNESS control.

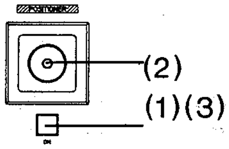
   Turning it toward the SOFT position increases the degree of softness. When it is turned fully to the HARD position, the softness effect is cancelled.

   (This control is effective for applications ①and ③ above.



[Positioner]

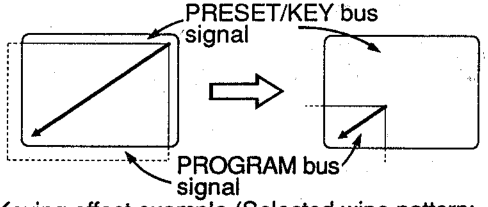
When ▣ , ▣ , or ▣ is selected in applications ①, ③, ⑤ and ⑥, the wipe pattern can be positioned at any location.
(1) Press the positioner ON button. (The button is lights.)
(2) Move the wipe pattern with the POSITIONER joystick.
(3) When the ON button is pressed again, the positioner function is cancelled, and the wipe pattern returns to the center position.



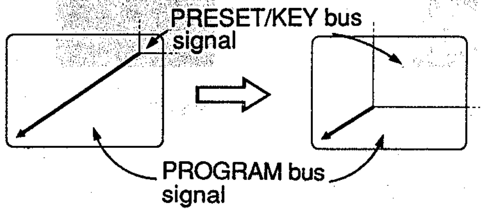
[Reverse mode in sliding]

When sliding is performed in the reverse mode with one of the corner wipe patterns selected (▣ , ▣ , ▣ or ▣), the picture changes as illustrated below.

- Background effect example (Selected wipe pattern: ▣)
  The PROGRAM bus signal slides out and the PRESET/KEY bus signal appears.



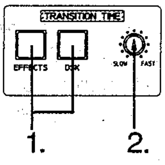
- Keying effect example (Selected wipe pattern: ▣)
  The PRESET/KEY bus signal slides in.



SETTING THE TRANSITION TIME

The automatic switching transition time can be set as required for all effects: *background*, *keying* and *DSK effects*.

1. Select the effect mode for automatic switching with the corresponding button.
   EFFECTS: For *background* and *keying effects.*
   DSK: For *DSK effects.*
2. Turn the control to set the desired transition time.
   Fully turned to FAST: 0 second (instant switching for a cut-in)
   Fully turned to SLOW: 20 seconds
   Center position: approx. 3 or 4 seconds.



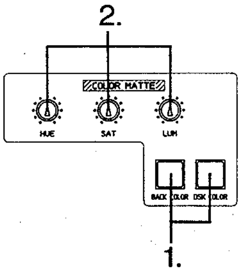
Note
For combined applications of the background and digital compress effects, possible time settings are from 0 to 1.2 seconds.

ADJUSTING COLOR SIGNALS

The color signal can be adjusted when the background color is selected on either bus, or when the DSK color is selected as a fill video signal in DSK effects.

1. Select the item for which the color signal is to be preset by pressing one of the following buttons.
   BACK COLOR: To set the BACK COLOR selected on either bus.
   DSK COLOR: To set the DSK color.

2. Adjust the color tone with the three controls.
   HUE: Hue control
   SAT: Saturation (color density) control
   LUM: Luminance (brightness) control


2.
COLOR MATTE
HUE
SAT
LUM
BACK COLOR
DSK COLOR
1.

REVERSE, STROBE, MOSAIC, AND PAINT EFFECTS

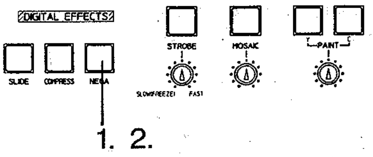
These effects can be used together with *background* and *keying effects*. First master the operations for *background* and *keying effects*, and then use these *digital effects*.

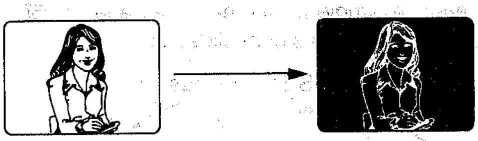
[Reverse (negative) effect]

Both the luminance and chroma signals are reversed simultaneously.

1. Press the NEGA button. (The button is lit.)
   The picture reverses to negative.

2. Press again to cancel the effect. (The light goes out.)


DIGITAL EFFECTS
SLIDE
COMPRESS
NEGA
STROBE
MOSAIC
PAINT
SLOW(FREEZE)
FAST
1. 2.



Negative picture

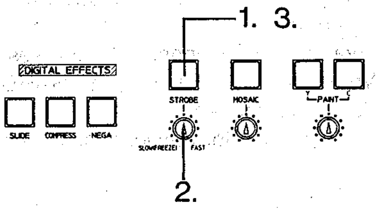
[Strobe effect]

Freezing on/off is performed automatically with intervals preset by the control under the button.

1. Press the STROBE button. (The button is lit.)
   The strobe mode is engaged.

2. Set the desired freeze on/off interval with the control.
   Fully turned to SLOW (FREEZE): Still picture
   Fully turned to FAST: Normal picture
   In-between, the interval can be shortened or increased in 8 steps.

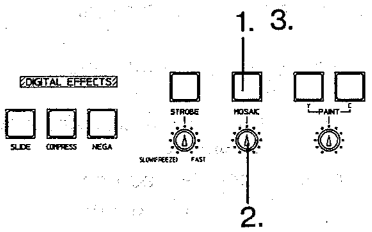
3. Press the STROBE button once again to cancel the effect.


1. 3.
DIGITAL EFFECTS
SLIDE
COMPRESS
NEGA
STROBE
MOSAIC
PAINT
SLOW(FREEZE)
FAST
2.

[Mosaic effect]

This effect results from coarsening the digital texture in both horizontal and vertical directions.

1. Press the MOSAIC button. (The button is lit.)
   The mosaic mode is engaged.
2. Adjust the texture with the control under the button.
   Texture is adjustable in 16 steps. Turning it clockwise makes the grid coarser.
3. Press the button once again to cancel the effect.


1. 3.
DIGITAL EFFECTS
SLIDE
COMPRESS
NEGA
STROBE
MOSAIC
PAINT
SLOW(FREEZE)
FAST
2.

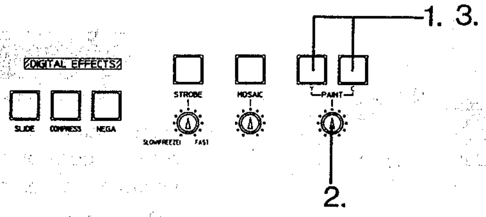
[*Paint effect*]

This effect results from coarsening the signal texture, either the luminance or chroma, or both together, to create an image which looks as if it has been painted with a brush. The effect of applying the paint effect to both the luminance and chroma signals is referred to as "posterization".

1. Press the signal for painting.
   PAINT Y (light on): Luminance signal
   PAINT C (light on): Chroma signal
   Both (both on): Posterization

2. Adjust the texture with the control under the button.
   Texture is adjustable in 8 steps. Turning it clockwise makes the texture coarser. The preset texture is held in memory for each selected signal.

3. Press the corresponding button once again to cancel the effect.


1. 3.
DIGITAL EFFECTS
SLIDE
COMPRESS
NEGA
STROBE
SLOW(FREEZE)
FAST
MOSAIC
Y
PAINT
C
2.

MASKING

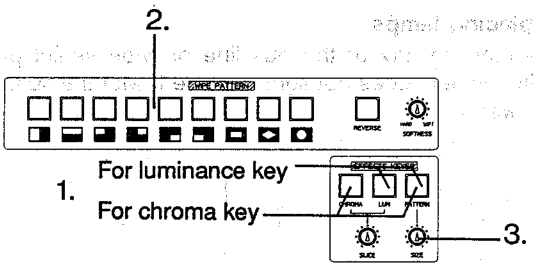
With keying effects applied, it is possible to use a wipe pattern to mask the area where keying should not take place. Take advantage of this function when satisfactory keying in of titles or persons is difficult due to irregular lighting or color problems. Keying of the unsatisfactory portion can be prevented by covering it with a wipe pattern.

This masking function can be used for luminance and chroma keys, but not for pattern keys or with digital slide and compress effects.

1. For luminance keys:
   Before switching the effect on, press the LUM and PATTERN buttons simultaneously.
   For chroma keys:
   Before switching the effect on, press the CHROMA and PATTERN buttons simultaneously.

2. Select a wipe pattern for masking.
   See page 40.

3. Adjust the masking size with the SIZE control.


2.
WIPE PATTERN
REVERSE
HARD
SOFT
SOFTNESS
1.
For luminance key
For chroma key
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
3.

OTHER FUNCTIONS

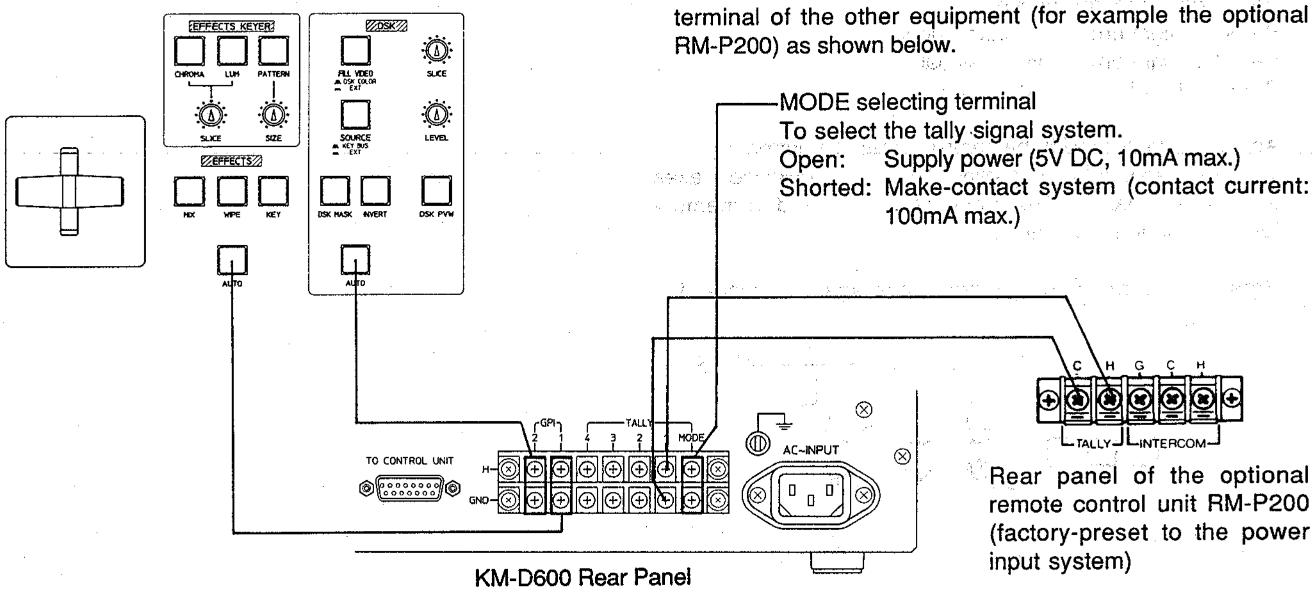
GPI (General Purpose Interface) connections

Connect switches to these terminals to remote control KM-D600 effects. These switches function in the same way as the buttons on the control unit of the KM-D600.

TALLY connections

In a video system using more than one camera, it is necessary to indicate the on-air camera to the camera operators and actors. This function is performed by the tally signal.

- Connect the TALLY connector on the rear panel to the Tally terminal of the other equipment (for example the optional RM-P200) as shown below.

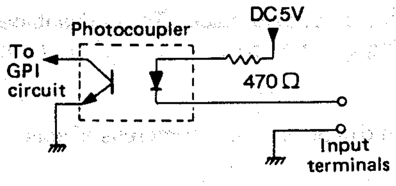

EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
EFFECTS
MIX
WIPE
KEY
AUTO
DSK
FULL VIDEO
DSK COLOR
EXT
SLICE
SOURCE
KEY BUS
EXT
LEVEL
DSK MASK
INVERT
DSK PVW
AUTO
GPI
2
1
TALLY
4
3
2
1
MODE
H
GND
TO CONTROL UNIT
AC~INPUT
C
H
G
C
H
TALLY
INTERCOM

MODE selecting terminal
To select the tally signal system.
Open: Supply power (5V DC, 10mA max.)
Shorted: Make-contact system (contact current: 100mA max.)

KM-D600 Rear Panel

Rear panel of the optional remote control unit RM-P200 (factory-preset to the power input system)

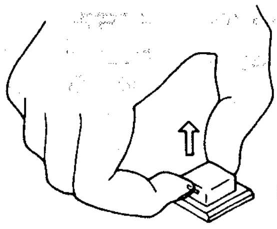
REPERENCE: INPUT CIRCUIT OF THE MAIN UNIT

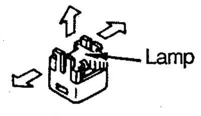

DC5V
Photocoupler
To GPI circuit
470Ω
Input terminals

Use a non-locking switch with chattering of less than 10 ms. If chattering exceeds 10 ms, it will result in a malfunction.

Replacing lamps

If a lamp in any of the bus line or wipe select pushbutton switches, etc. does not light, replace it with the spare lamp as follows:


Pull off the key top



Key top

Pull out the lamp from the key top, then insert a new lamp.

SPECIFICATIONS (U version)

INPUT SIGNALS

Video Inputs:	Y/C 358: 4 inputs, Y = 1 Vp-p (with Sync) C = 0.286 Vp-p (Burst level), 75 ohms (7-pin x 4) VBS: 4 inputs, 1 Vp-p, 75 ohms (BNC x 4)
Genlock Inputs:	BB: 0.43 Vp-p, 75 ohms or high impedance (BNC x 2)
Chroma Key Inputs:	RGB: 0.7 Vp-p, 75 ohms (BNC x 3)
DSK Key Input:	VS or VBS: 0.7/1 Vp-p, 75 ohms (BNC x 1)
DSK Fill Inputs:	RGB: 0.7 Vp-p, 75 ohms (BNC x 3)
DOC:	0.2 to 1 Vp-p, 75 ohms (BNC x 2)
GPI:	Dry contact (Terminal)

OUTPUT SIGNALS

Program Outputs:	Y/C 358: 2 outputs, Y = 1 Vp-p (with Sync) C = 0.286 Vp-p (Burst level), 75 ohms (7-pin x 2)
Preview Output:	Y/C 358: Y = 1 Vp-p (with Sync) C = 0.286 Vp-p (Burst level), 75 ohms (7-pin x 1)
Program VBS Output:	1 Vp-p, 75 ohms (BNC x 1)
Preview VBS Output:	1 Vp-p, 75 ohms (BNC x 1)
Tally Output:	+5 V or dry contact (Terminal)

SYNC OUTPUT SIGNALS

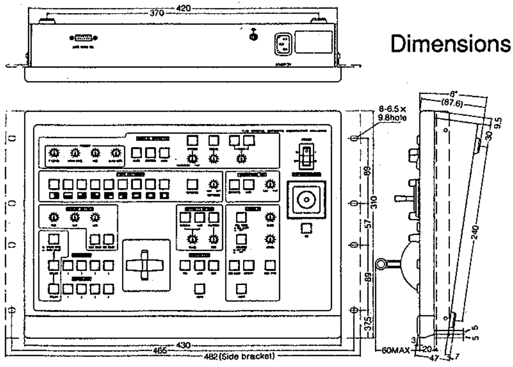
BB:	0.43 Vp-p, 75 ohms (BNC x 2)
HD:	4 Vp-p, 75 ohms (BNC x 1)
VD:	4 Vp-p, 75 ohms (BNC x 1)
REF Sync:	4 Vp-p, 75 ohms (BNC x 1)
ADV Sync:	4 Vp-p, 75 ohms (BNC x 2)

PERFORMANCE

Frequency Response:	60 Hz to 5.0 MHz (+0.5 dB, –3 dB)
S/N Ratio:	More than 55 dB (P-P/RMS)
Y/C Timing:	Less than 50 nsec.
Power Consumption:	Main unit, 70W Control unit, 12W
Power Supply:	120 V AC, 60Hz
Ambient Temperature Range:	5°C to 40°C (40°F to 104°F)
Weight:	Main unit, 13.6kg Control unit, 4.5kg

ACCESSORIES

Cable Assembly:	SCV1408 10M, 10 m/32 f, 1 pcs.
Termination Plug:	SCV0286-001, 1 pcs.
Power Cord:	QMP9003-022, 2 pcs.
Lamp Assembly:	SCV0302-100, 1 pcs.
Side Bracket:	SC20456-00A, 2 pcs.
Screw:	SDSP3012, M3 x 12, 4 pcs.



Dimensions: (unit: mm)

SPECIFICATIONS (E version)

INPUT SIGNALS

Video Inputs:	Y/C 443: 4 inputs, Y = 1 Vp-p (with Sync) C = 0.3 Vp-p (Burst level), 75 ohms (7-pin x 4) VBS: 4 inputs, 1 Vp-p, 75 ohms (BNC x 4)
Genlock Inputs:	BB: 0.45 Vp-p, 75 ohms or high impedance (BNC x 2)
Chroma Key Inputs:	RGB: 0.7 Vp-p, 75 ohms (BNC x 3)
DSK Key Input:	VS or VBS: 0.7/1 Vp-p, 75 ohms (BNC x 1)
DSK Fill Inputs:	RGB: 0.7 Vp-p, 75 ohms (BNC x 3)
DOC:	0.2 to 1 Vp-p, 75 ohms (BNC x 2)
GPI:	Dry contact (Terminal)

OUTPUT SIGNALS

Program Outputs:	Y/C 443: 2 outputs, Y = 1 Vp-p (with Sync) C = 0.3 Vp-p (Burst level), 75 ohms (7-pin x 2) Y/C924: Y=0.5 Vp-p (with sync) C=0.5 Vp-p (Chroma level), 75 ohms (Switchable with Y/C443 output 1)
Preview Output:	Y/C 443: Y = 1 Vp-p (with Sync) C = 0.3 Vp-p (Burst level), 75 ohms (7-pin x 1)
Program VBS Output:	1 Vp-p, 75 ohms (BNC x 1)
Preview VBS Output:	1 Vp-p, 75 ohms (BNC x 1)
Tally Output:	+5 V or dry contact (Terminal)

SYNC OUTPUT SIGNALS

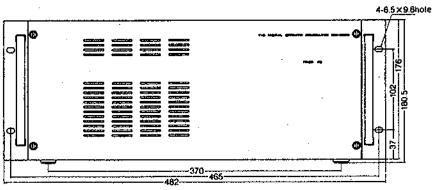
BB:	0.45 Vp-p, 75 ohms (BNC x 2)
HD:	4 Vp-p, 75 ohms (BNC x 1)
VD:	4 Vp-p, 75 ohms (BNC x 1)
REF Sync:	4 Vp-p, 75 ohms (BNC x 1)
ADV Sync:	4 Vp-p, 75 ohms (BNC x 2)

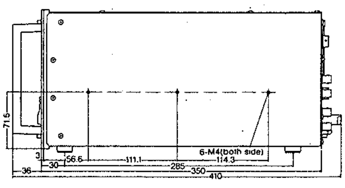
PERFORMANCE

Frequency Response:	60 Hz to 5.0 MHz (+0.5 dB, –3 dB)
S/N Ratio:	More than 55 dB (P-P/RMS)
Y/C Timing:	Less than 50 nsec.
Power Consumption:	Main unit, 70W Control unit, 12W
Power Supply:	220/240V AC, 50/60 Hz
Ambient Temperature Range:	5°C to 40°C (40°F to 104°F)
Weight:	Main unit, 13.6kg Control unit, 4.5kg

ACCESSORIES

Cable Assembly:		SCV1408-10M, 10 m/32 f, 1 pcs.
Termination Plug:		SCV0286-001, 1 pcs.
Power Cord:	EA type:	SCV0420-2M5, 2 pcs.
	EK type:	SCV0419-2M5, 2 pcs.
	EG type:	QMP4908-250, 2 pcs.
Lamp Assembly:		SCV0302-100, 1 pcs.
Side Bracket:		SC20456-00A, 2 pcs.
Screw:		SDSP3012, M3 x 12, 4 pcs.





SECTION 1
CIRCUIT DESCRIPTION

1.1 COMPOSITION OF CIRCUIT BOARDS

The Y/C digital special effects generator KM-D600 is mainly composed of the following circuit borads.

1.	VIDEO board	Main unit
2.	KEY board	
3.	Y/C SEPA board	
4.	SG/CPU board	
5.	EFF TBC board	
6.	TBC board	
7.	MT board	
8.	BNC board	
9.	CC board	Control unit
10.	CTL board	
11.	PS unit (for Main unit and Control unit each)	

Each circuit board of the above 1 through 6 is a plug-in circuit board, which is connected to the MT board with a 300-pin bus connector. Input and output signals to/from the KM-D600 are supplied to every plug-in circuit board through the BNC board and MT board. (See Fig. 1-6.)

1.2 PRIMARY FUNCTION OF EACH CIRCUIT BOARD

1.2.1 VIDEO board

(See Fig. 1-7 together with the following description.)
This circuit board functions for input and output of video signals, and its circuit and function are mainly classified into five as follows.

1. CROSS POINTS CIRCUIT
This circuit selects video signals to use for the PROGRAM bus and PRESET/KEY bus from Y/C input signals 1 through 4 and color signal, while it also selects RF signal from VTR to be supplied to the DOC (drop out compensator) circuit.
In a block diagram of Fig. 1-7 this circuit is illustrated on the crosspoint of the Y/C ↔ VBS switche's input selector, however, it is actually located on the Y/C SEPA circuit board.
Signal selected by the PROGRAM bus is once outputted from the VIDEO board and again it returns to the VIDEO board via the Y/C board and TBC board. This input signal is outputted as main video signal from the PGM OUTPUT connector through EFFECTS amps.
Signal selected by the PRESET/KEY bus is once outputted from the VIDEO board and returns to it and to the KEY board via the Y/C SEPA board and EFF TBC board. The signal inputted to the VIDEO board again is switched by the EFFECTS amps to be replaced with main video signal. Input signal to the KEY board is utilized as key source signal of the luminance key and the DSK.

2. EFFECTS AMPS.
The group of effects amplifiers functions for special effects such as WIPE, MIX, KEYING, DSK, etc.
The amp. circuits are two connected in series; one is for WIPE, MIX, KEYING effects and the other for DSK effect. Each circuit is provided in two kinds of PGM (program) output and of PVW (preview) output. In addition, Y (luminance) and C (chrominance) signals are processed individually.

- WIPE/MIX/KEYING amp (PGM EFF/PVW EFF amp)
  This amplifier circuit processes special effects (WIPE, MIX and KEYING) operated by the EFFECTS section of the control panel.
  However, the PVW output amp does not operate for WIPE and MIX effects. In other words, WIPE and MIX effects cannot be confirmed on the preview monitor, and only KEYING is confirmed.
- DSK amp (PGM DSK/PVW DSK amp)
  This circuit processes DSK effect operated by the DSK section of the control panel.

3. COLOR SIGNAL GENERATOR
This circuit generates color signal selected by the crosspoints circuit.

- Color bars signal
  IC11 and IC12 produce R, G, B bar pulses by dividing blanking pulse. The R, G, B pulses are converted into Y, R-Y and B-Y signls by IC13, and then IC40 and IC41 modulate R-Y and B-Y signals to produce chrominance (C) signal.
- Back color signal
  Y, R-Y and B-Y signals are yielded by mixing blanking signal after 0 V to 5 V analog voltage corresponding to Y, R-Y and B-Y signals supplied from the SG/CPU board is shifted into DC voltage.

One of the above two chrominance signals is supplied to the crosspoints circuit.

4. OUTPUT AMPS.
The output amps send outputs of the effect amps via connectors of the rear panel.

5. DROPOUT DETECTION CIRC UIT
This circuit generates DOC pulse by detecting dropout components of VTR's RF output signal. This DOC pulse is supplied to the TBC board and EFF TBC board.

1.2.2 KEY board

(See Fig. 1-7 together with the following description.)

1. CHROMA KEY ENCODER

This circuit produces signals of FILL video which is one of chroma key effects by use of R, G, B signals inputted from the rear panel connectors.
Produced FILL video signal (CHR. KEY FILL Y/C) is supplied to the PGM EFF/PVW EFF amp via IC6 and IC7 of the VIDEO board in CHROMA KEY operation. After the PGM EFF/PVW EFF amp, the signal is mixed into the program video signal.

2. KEY HOLE SIGNAL GENERATOR (EFFECTS KEYER CONTROL)

This circuit generates key hole signals to cut out the program video. Key hole signals are differently generated according to the keying mode.

- Chroma key (CHROMA)
  From R, G, B signals inputted from the rear panel connectors, color difference signals (R-Y, B-Y) are acquired and signal of blue component is produced by resistance mixing. A key hole signal is produced by comparing the blue component with slice level by the key comparator.
- Luminance key (LUM)
  In order to produce a key hole signal, Y signal of PRESET/KEY bus signal supplied from the crosspoints circuit of the VIDEO board is compared with slice level by the key comparator.
- Pattern key (PATTERN)
  WIPE waveform (PST PTN = preset pattern) generated by the wipe signal generator (will be described later) becomes a key hole signal.

Each of chroma key signal and luminance key signal is supplied via the masking circuit of IC47-B (analog switch). Key hole signal of the PATTERN KEY is also inputted to IC47-B, and one of them is selected. The selected key hole signal branches into two lines.
In a line, the signal is mixed with wipe waveform (WIPE/MIX) generated by the wipe signal generator, and the mixed signal is supplied to the program effects amp (PGM EFF) of the VIDEO board as control signal.
Signal in the other line is directly supplied to the preview effect amp (PVW EFF) of the VIDEO board.

3. WIPE WAVEFORM GENERATOR (WIPE & MIX EFFECTS)

Wipe waveform (PST PTN, WIPE/MIX) to be used for the key hole signal generator is generated by this circuit.
The PST PTN signals are also used for the DSK key hole siganl generator (will be described later).
The wipe waveform generator is classified into two circuits of the following.

- Waveform generator (WAVEFORM GEN.)
  This circuit generates sawtooth waveform, triangular waveform and parabolic waveform which are necessary to produce wipe waveforms. The circuit construction is the same as the waveform generator of the KM-2500.
- Pattern selector circuit (PATTERN SELECT)
  Waveform generated by the waveform generator is processed to be a wipe waveform corresponding to the selected wipe pattern.
  Since the same wipe pattern is selected for PST PTN and WIPE/MIX signals, an individual wipe pattern corresponding to the PST PTN or WIPE/MIX signal cannot be selected.

In case of WIPE/MIX signal, MIX DC is outputted for a wipe waveform in MIX effect operation.
The MIX DC is an analog voltage which is regulated by the setting position of the FADER lever.
For digital effects (slide, compress), WIPE/MIX signal and PST PTN signal are switched to SLIDE KEY signal generated by the EFF TBC board.

4. DSK ENCODER

This circuit produces FILL video signal for DSK effects converting R, G, B signals inputted from the rear panel connectors of Y, R-Y, B-Y signals of DSK color signal supplied from the SSG/CPU board.
Generated FILL video signal (DSK FILL Y/C) is inputted to the effect amps (PGM DSK/PVW DSK) of the VIDEO board in the DSK operation, and at the same time, it is inserted into the PROGRAM video.
Sync signal to be added to the FILL video signal (DSK FILL Y) and burst signal to be added to DSK FILL C are replaced for sync and burst signals of video input signal by function of the effect amps (PGM DSK/PVW DSK) of the VIDEO board.

5. DSK HOLE SIGNAL GENERATOR (DSK CONTROL)

In DSK effect operation, this circuit generates DSK hole signals to cut out the PROGRAM video. DSK hole signals are acquired by comparing Y signal of PRESET/KEY bus signal supplied from the crosspoints circuit of the VIDEO board or input signal from the DSK KEY connector of the rear panel with slice level by the key comparator. Generated DSK hole signal branches into two lines of the following.
In a line, the signal is mixed with DSK FADER signal and the mixed signal is supplied to the effect amp (PGM DSK) of the VIDEO board as control signal.
In the other line, the signal is again mixed with DSK LEVEL signal and then is sent to the effect amp (PVW DSK) of the VIDEO board.
Each of the DSK FADER signa and DSK LEVEL siganl is analog voltage to determine mixing degree of the DSK effect, the two, however, are different from each other in the following points.
DSK FADER siganl is varied by pressing the AUTO button of the DSK section on the control panel.

DSK LEVEL signal appears by pressing the DSK PVW button of the DSK section, and it disappears just after the DSK effect is mixed into the program video signal.

6. B.B. (BLACK BURST) SIGNAL GENERATOR
(B.B. GENERATOR)

After FILL video signals (FILL Y and FILL C) generated by the DSK encoder are mixed by the B.B. signal generator, IC65-A extracts the blanking periods to produce B.B. signal.

1.2.3-N Y/C SEPA board (NTSC)

(See Fig. 1-8 together with the following description.)
This board comprises circuits to separate composite signal into Y and C signals. When input signal is Y/C signal, the signal bypasses the Y/C separator circuit.

1. Y/C SEPARATOR CIRCUIT

Input signal selected by the cross points circuit of the VIDEO board is supplied to the Y/C separator circuit. The Y/C separator circuit comprises the PROGRAM BUS and PRESET/KEY BUS systems, each of which has independent circuit structure.
The Y/C separator of this model employs three-line comb filter circuit to improve Y/C separation capacity in non-correlating components much more than conventional two-line comb filter circuits. In concrete, conventional two-line comb finter circuit separates Y and C signals by operating the present line and the line before, however, this Y/C separator first compares the present line with the two lines before and after and operates the present line and one of the two lines more similar to the present one. However, the line after the present line cannot be operated. In practice, therefore, the reference signal (present line) is delayed by 1H to do such operating, and, as a result, 2H delayed signal is additionally required besides the original signal (0H) and 1H delayed signal.
These three kinds of signals are inputted to the V. correlator, which judges to subtract 1H delayed signal from the original signal or from 2H delayed signal by line correlation and outputs the subtraction result as chroma signal.

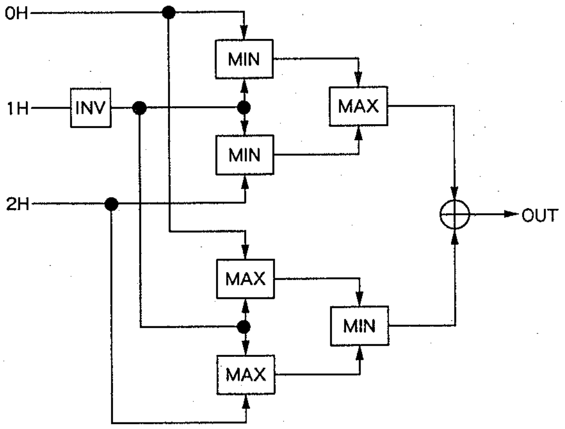


Fig. 1-1-N Inside of V. correlator

This chroma signal is added to the 1H delayed signal (composite signal) to produce Y signal.
Y/C signal of the PROGRAM BUS is supplied to the TBC board, while that of the PRESET/KEY BUS is supplied to the EFF TBC board.

1.2.3-P Y/C SEPA board (PAL)

(See Fig. 1-8-P together with the following description.)
This board comprises circuits to separate composite signal into Y and C signals. When input signal is Y/C signal, the signal bypasses the Y/C separator circuit.

1. Y/C SEPARATOR CIRCUIT

Input signal selected by the cross points circuit of the VIDEO board is supplied to the Y/C separator circuit. The Y/C separator circuit comprises the PROGRAM BUS and PRESET/KEY BUS systems, each of which has independent circuit structure.
In this model, logical comb filter utilizing V. correlation is employed for Y/C separation, and it performs Y/C separation without deterioration in resolution differently from operation of notching filters.
As shown in Fig. 1-8-P, 0H chroma signal obtained by passing input composite signal through BPF and another chroma signal which the above chroma signal is delayed by 2H are inputted to the V. correlator circuit. In the V. correlator, line correlation is detected and high band Y components around 4.43 MHz are extracted. These Y components are added to the 0H chroma signal to remove high band Y components from the chroma signal. Desirable chroma signal is thus obtained.
Then, the chroma signal is added to input composite signal to cancel chroma signal only without losing high band Y components. Thus, desirable Y signal is obtained.
However, there occurs blurred color for 1H in non-correlating parts (in such a case that colorring changes vertically).

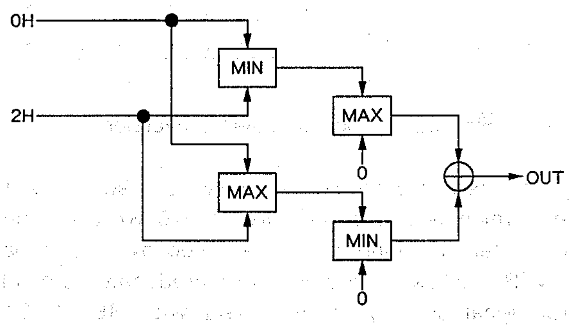


Fig. 1-1-P Inside of V. correlator

Y/C signal of the PROGRAM BUS is supplied to the TBC board, while that of the PRESET/KEY BUS is supplied to the EFF TBC board.

1.2.4 TBC board

The TBC board functions to remove H. jitter from input signal as well as to make field synchronization. This board is roughly classified into three circuits of the following.

1. INPUT PROCESS CIRCUIT
See Fig. 1-9.
From input Y/C signal are VTR SYNC signal and color difference signals (AD Y/R-Y/B-Y) obtained.
VTR SYNC signal is a synchronously separated signal from Y signal and it becomes original signal of VTR CLOCK signal to be used for digital processing.
AD Y/R-Y/B-Y signal whose high components are first removed for A-D conversion in digital processing is softly clamped to stabilize DC value. Y CP and C CP signals to be used for clamping are respectively produced from VTR SYNC signal.

2. DIGITAL PROCESS CIRCUIT
See Fig. 1-10.
Each AD Y/R-Y/B-Y signal is converted into 8-bit digital signal by the A-D converter and supplied to the TBC circuit.
Sampling clocks for A-D conversion is 13.5 MHz for Y signal while 3.375 MHz (1/4 of sampling clock for Y signal) for R-Y and B-Y signals. (4 : 1 : 1 system)
Digital data of R-Y and B-Y signals are alternately switched by the 3.375 MHz sampling clock to be multiplexed to one data. (Fig. 1-2)
These clocks include jitter components since they are produced from VTR SYNC signal.

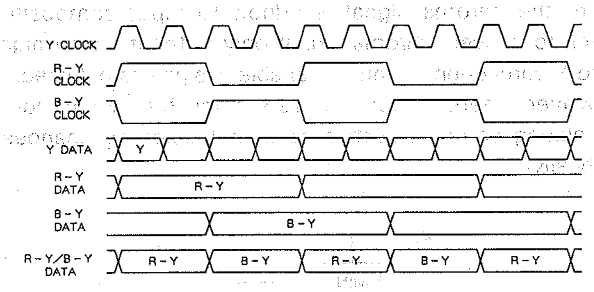


Fig. 1-2 Process of A-D conversion

A-D converted data are respectrively inputted to the 1H buffer, which is a line memory of 910 words (8 bits/word). Jitter components are removed by writing data with VTR CLOCK (including jitter) produced from VTR SYNC signal and by reading data with REF CLOCK (excluding jitter).
Being outputted from the 1H buffer, data becomes field synchronous signal by the field memory. Since the capacity of a field memory is 4-bit/word, two field memories are necessary to input/output 8-bit data. However, input/output of R-Y and B-Y signals is processed by one field memory by time division between the upper 4 bits and the lower 4 bits, because the sampling clock for them is 1/4 of that for Y signal. (See Fig. 1-3.)

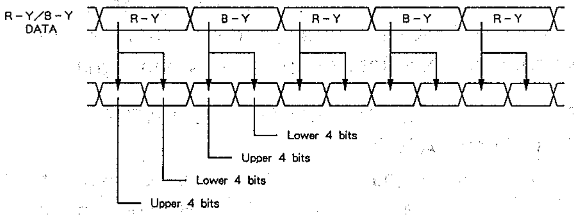


Fig. 1-3 R-Y/B-Y data input/output to/from field memory

After outputs of the field memory are added with blanking data, they are returned to analog (DA Y/R-Y/B-Y) signals by the D-A converter.
The digital process circuit generates clocks and memory control signals necessary for the above-mentioned circuits. In addition, it compensates dropout with DOC pulse supplied from the video circuit. Dropout compensation is operated by inhibiting writing data of the line having dropout to the 1H buffer (see previous description), in other words, the dropout part is replaced with the signal of 1H before. When input signal is composite signal, dropout cannot be compensated correctly since the signal is delayed by 1H by the Y/C separator circuit.

3. OUTPUT PROCESS CIRCUIT
See Fig. 1-11.
D-A converted DA Y/R-Y/B-Y signal passes LPF to remove digital noise, while color difference signal is encoded to become chroma (C) signal.
Y/C signal processed by the TBC circuit as mentioned above is supplied to the PROGRAM EFFECTS amps of the VIDEO board.

1.2.5 EFF TBC board

The EFF TBC board, as same as the TBC board, removes jitter from input signal and makes it field synchronous. In addition, this board processes a variety of digital effects onto input signal.

The function and circuit configuration of the EFF TBC board is roughly classified into INPUT PROCESS, DIGITAL PROCESS and OUTPUT PROCESS. Among of them, the INPUT PROCESS and OUTPUT PROCESS are entirely the same as the TBC board, and explanation about them is therefore omitted.

Y/C signal output of the EFF TBC board is supplied to the PREVIEW EFFECTS amps of the VIDEO board.

1. DIGITAL PROCESS

As essentially same as the TBC board, input signal is A-D converted into 8-bit digital sinal to be used for TBC processing and field synchronizing.

The following are main points different from the TBC board. See Fig. 1-12 and Fig. 1-13, too.

- V filter

  The V. filter is provided for interpolation of dropout line data when image is compressed by digital effect. Interpolation is performed by adding 1H delayed signal to the original signal.

  The V. filter is turned on when the compression size is smaller than the half of the original.

- V slide and compress control

  Vertical slide and compress effect can be operated by controlling readout line of the field memory.

  ISAD (generated by EFF TBC 2) is serial data to indicate first address of the line to read out.

- H slide control

  Horizontal slide effect is operated by offsetting reset timing of the readout address counter of the field memory.

  HD (generated by EFF TBC 2) is offset signal to SYSTEM HD.

- H compress control

  Horizontal compress effect is operated by controlling the WRITE ENABLE (WRITE INHIBIT ON/OFF) terminal of the POST 1H buffer behind the field memory at a certain interval.

  YWE and CWE (generated by EFF TBC 2) are control signals.

- Mosaic effect

  Mosaic effect is operated by curtailing data by reading the same data for a certain period. For vertical mosaic effects, data curtailment is operated by resetting write/read address to/from the POST 1H buffer every writing/reading together with reset prohibit at a certain interval.

  MH and YMH are address reset signals (generated by EFF TBC 2).

  Horizontal mosaic effects are operated by curtailing clocks of the D-A converter.

- Paint effect

  Paint effect is performed by turning down signal in the gradation. Gradation becomes rough by fixing data to "0" from the LSB appropriately for desired painting.

  Paint effect is operated by the exclusive IC.

- Nega (negative) effect

  Nega effect is obtained by inverting all bits of data before mixing blanking signal.

- Freeze effect

  Freeze effect is obtained by write inhibit to the field memory.

1.2.6 SG/CPU board

The function of the SG/CPU board can be classified into two main ones of the following.

1. SSG function

Besides this function generates reference sync signals to be used by various circuits of the KM-D600, it operates gen-lock with external sync signals, too.

Reference signals which can be supplied to external equipment are ADV SYNC, VD, HD, SYNC and B.B. signals.

Reference signals except B.B. signal are outputted to the rear panel connectors from the SG/CPU board.

B.B. signal is generated by the B.B.signal generator of the KEY board, which directly outputs the signal.

2. CPU function

This function is classified into two: one is as the CPU to control each section of the KM-D600, and the other is to control peripheral equipment (RAM/ROM/I.O. ports).

The CPU operates serial transmission with the CPU on the CC board of the control unit in order to control every boards according to received data of the control panel.

The resolution of the D-A converter is 12 bits for fader voltage, pattern key size and positioner X, Y while 8 bits for others.

When replacing the PROGRAM ROM of this board with a new version, also replace another PROGRAM ROM of the CC board with the same version. If they are different with each other in the version, correct operation cannot take place.

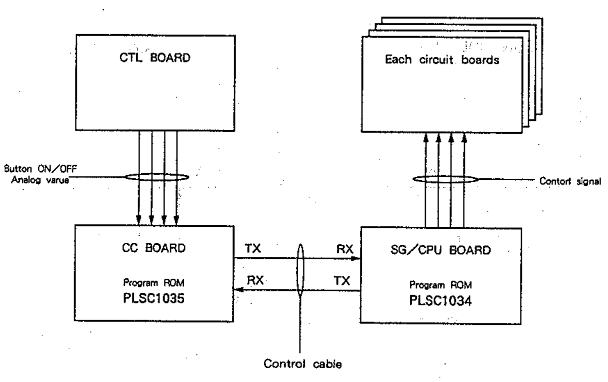


Fig. 1-4

1.2.7 MT board

The MT board is the mother board to link signals among various circuit boards. The 300-pin connector is common to every plug-in board. However, the connector prepared at the position (lowermost) for the TBC board is a 200-pin connector, therefore, any board cannot be set at this position except the TBC board and EFF TBC board.

1.2.8 CC board

There is the CPU prepared for controlling the control panel.
The CC board sends data of the control panel supplied from the CTL board to the SG/CPU board of the main unit by serial transmission. Since setting data of controls is analog voltage, it is converted into digital data. The A-D converter is a sequential comparison type. The resolution is 12 bits for fader voltage, pattern key size and positioner X, Y while 8 bits for others.

1.2.9 CTL board

All buttons and controls of the control panel are located on or connected to this CTL board.
Setting position of each controller is informed to the CC board as analog voltage of 0 V to 5 V, and the CC board performs A-D conversion to send it to the CPU as a digitalized data.
Setting position of each button (ON/OFF) is detected by IC1, which transmits the detected information to the CPU. When the CPU recognizes button operation, it sends the switching information via IC2/3 (Parallel Input/Output) to a lamp driver which is provided for every button, and the lamp corresponding to the operation is turned on.

1.2.10 PS unit

The PS unit, which is provided in the control unit and the main unit respectively, rectifies AC power voltage to DC voltage and supplies it to every board.
When the power switch of the control unit is turned on, 12 V DC is supplied to the main unit through a connector cable and it drives internal relay of the main unit. As the relay is switched on, the PS unit of the main unit is supplied with AC power and it consequently supplies power voltages to relating circuits of the main unit.

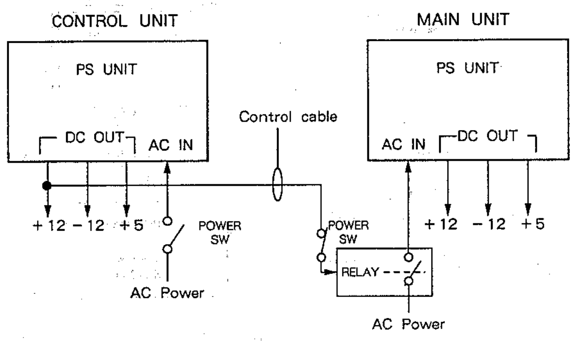


Fig. 1-5

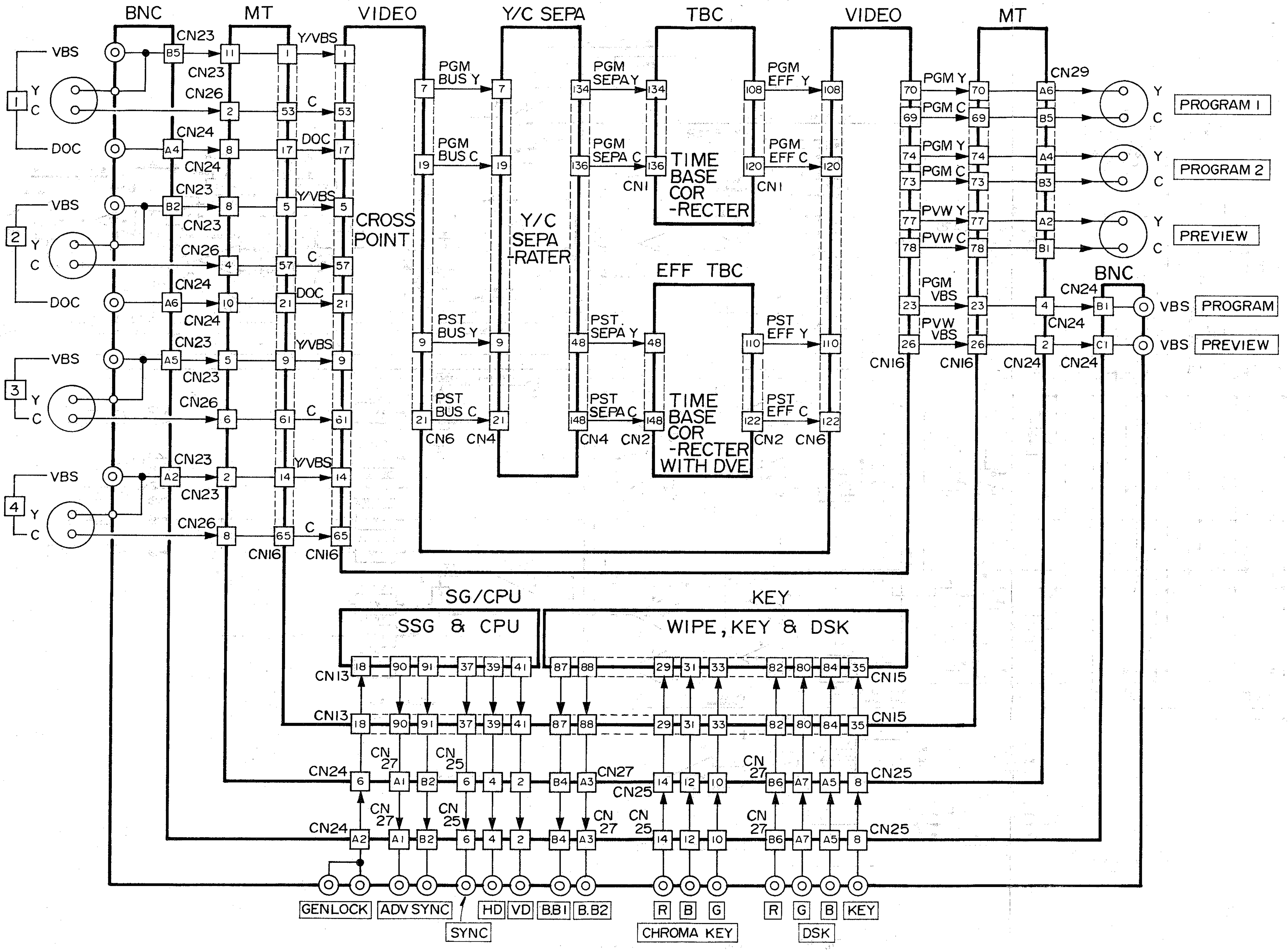

BNC
MT
VIDEO
Y/C SEPA
TBC
VIDEO
MT
VBS
Y
C
DOC
1
2
3
4
CN23
CN24
CN26
CN16
Y/VBS
C
DOC
CROSS POINT
PGM BUS Y
PGM BUS C
PST BUS Y
PST BUS C
CN6
CN4
Y/C SEPA -RATER
PGM SEPA Y
PGM SEPA C
PST SEPA Y
PST SEPA C
CN1
CN2
TIME BASE COR -RECTER
EFF TBC
TIME BASE COR -RECTER WITH DVE
PGM EFF Y
PGM EFF C
PST EFF Y
PST EFF C
PGM Y
PGM C
PVW Y
PVW C
PGM VBS
PVW VBS
CN29
PROGRAM 1
PROGRAM 2
PREVIEW
BNC
VBS
PROGRAM
PREVIEW
SG/CPU
SSG & CPU
KEY
WIPE, KEY & DSK
CN13
CN15
CN24
CN25
CN27
GENLOCK
ADV SYNC
SYNC
HD
VD
B.B1
B.B2
R
B
G
CHROMA KEY
R
G
B
KEY
DSK

Fig. 1-6 Input and output signals

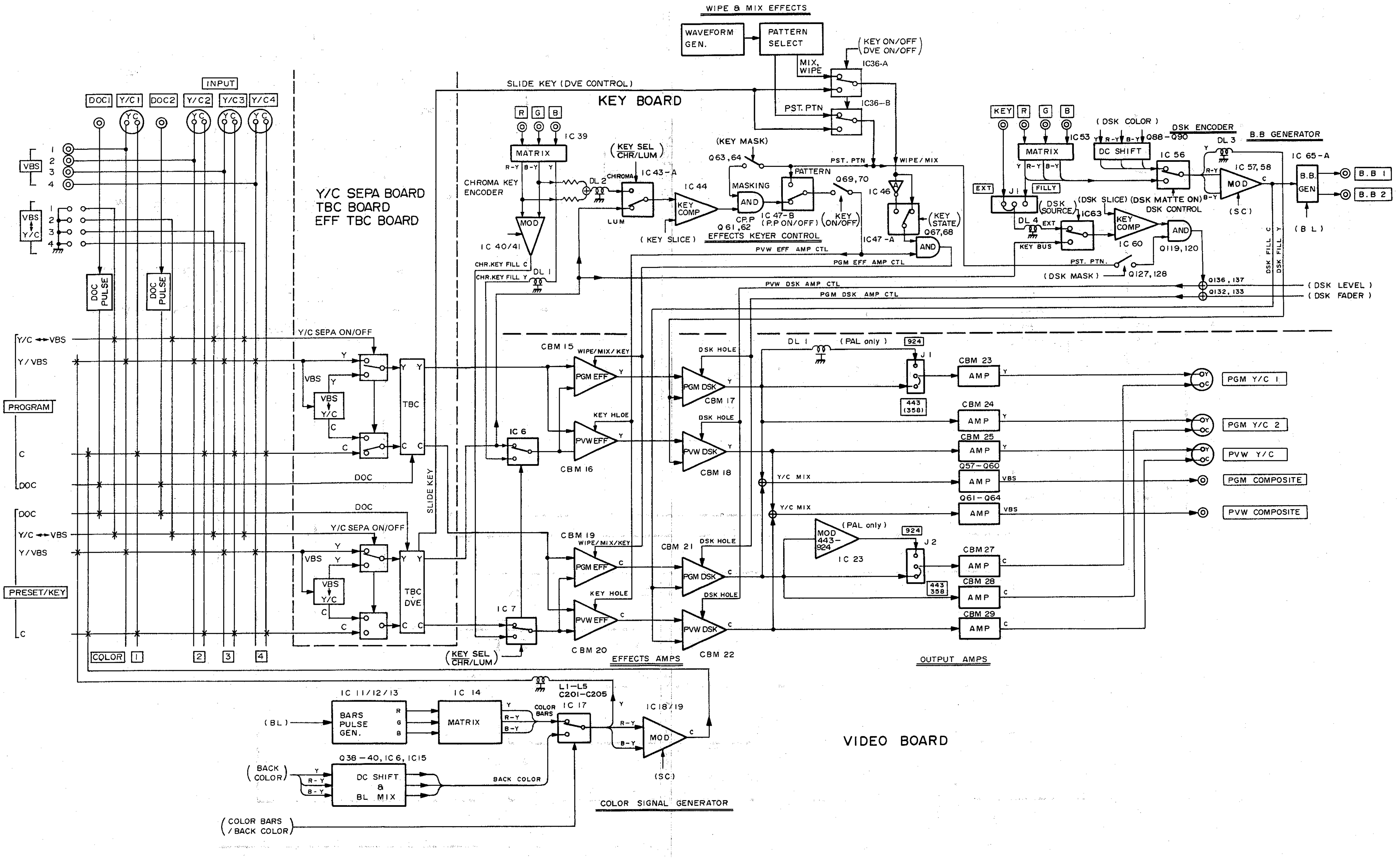

WIPE & MIX EFFECTS
WAVEFORM GEN.
PATTERN SELECT
KEY ON/OFF
DVE ON/OFF
MIX, WIPE
IC36-A
IC36-B
PST. PTN
SLIDE KEY (DVE CONTROL)
KEY BOARD
INPUT
DOC1
Y/C1
DOC2
Y/C2
Y/C3
Y/C4
VBS
VBS Y/C
DOC PULSE
Y/C SEPA BOARD
TBC BOARD
EFF TBC BOARD
R
G
B
IC 39
MATRIX
R-Y
B-Y
Y
CHROMA KEY ENCODER
MOD
IC 40/41
DL 2
KEY SEL CHR/LUM
CHROMA
IC 43-A
LUM
CHR.KEY FILL C
CHR.KEY FILL Y
DL 1
KEY MASK
Q63,64
IC 44
KEY COMP
KEY SLICE
MASKING
AND
PATTERN
CP.P
Q61,62
IC 47-B
P.P ON/OFF
Q69,70
KEY ON/OFF
IC 46
WIPE/MIX
KEY STATE
Q67,68
IC47-A
AND
EFFECTS KEYER CONTROL
PVW EFF AMP CTL
PGM EFF AMP CTL
KEY
EXT
J1
FILLY
DSK SOURCE
DL 4
KEY BUS
IC53
DSK COLOR
Q88-Q90
DC SHIFT
DSK ENCODER
IC 56
DL 3
IC 57,58
MOD
SC
DSK SLICE
DSK MATTE ON
DSK CONTROL
IC63
KEY COMP
IC 60
AND
Q119,120
PST. PTN.
DSK MASK
Q127,128
B.B GENERATOR
IC 65-A
B.B. GEN
B.B 1
B.B 2
BL
DSK FILL C
DSK FILL Y
Q136,137
Q132,133
DSK LEVEL
DSK FADER
PVW DSK AMP CTL
PGM DSK AMP CTL
Y/C ↔ VBS
Y/VBS
PROGRAM
C
DOC
PRESET/KEY
Y/C SEPA ON/OFF
TBC
TBC DVE
SLIDE KEY
CBM 15
WIPE/MIX/KEY
PGM EFF
KEY HLOE
PVW EFF
CBM 16
IC 6
IC 7
CBM 19
PGM EFF
KEY HOLE
PVW EFF
CBM 20
EFFECTS AMPS
DSK HOLE
PGM DSK
CBM 17
PVW DSK
CBM 18
CBM 21
CBM 22
DL 1
PAL only
924
J 1
443 (358)
CBM 23
AMP
CBM 24
CBM 25
Q57-Q60
Q61-Q64
Y/C MIX
VBS
MOD 443-924
IC 23
J 2
443 358
CBM27
CBM 28
CBM 29
OUTPUT AMPS
PGM Y/C 1
PGM Y/C 2
PVW Y/C
PGM COMPOSITE
PVW COMPOSITE
COLOR
1
2
3
4
L1-L5
C201-C205
IC 11/12/13
BARS PULSE GEN.
IC 14
MATRIX
COLOR BARS
IC 17
IC 18/19
MOD
(SC)
Q38-40, IC6, IC15
BACK COLOR
DC SHIFT & BL MIX
COLOR BARS / BACK COLOR
COLOR SIGNAL GENERATOR
VIDEO BOARD

Fig. 1-7 Block diagram of VIDEO board and KEY board

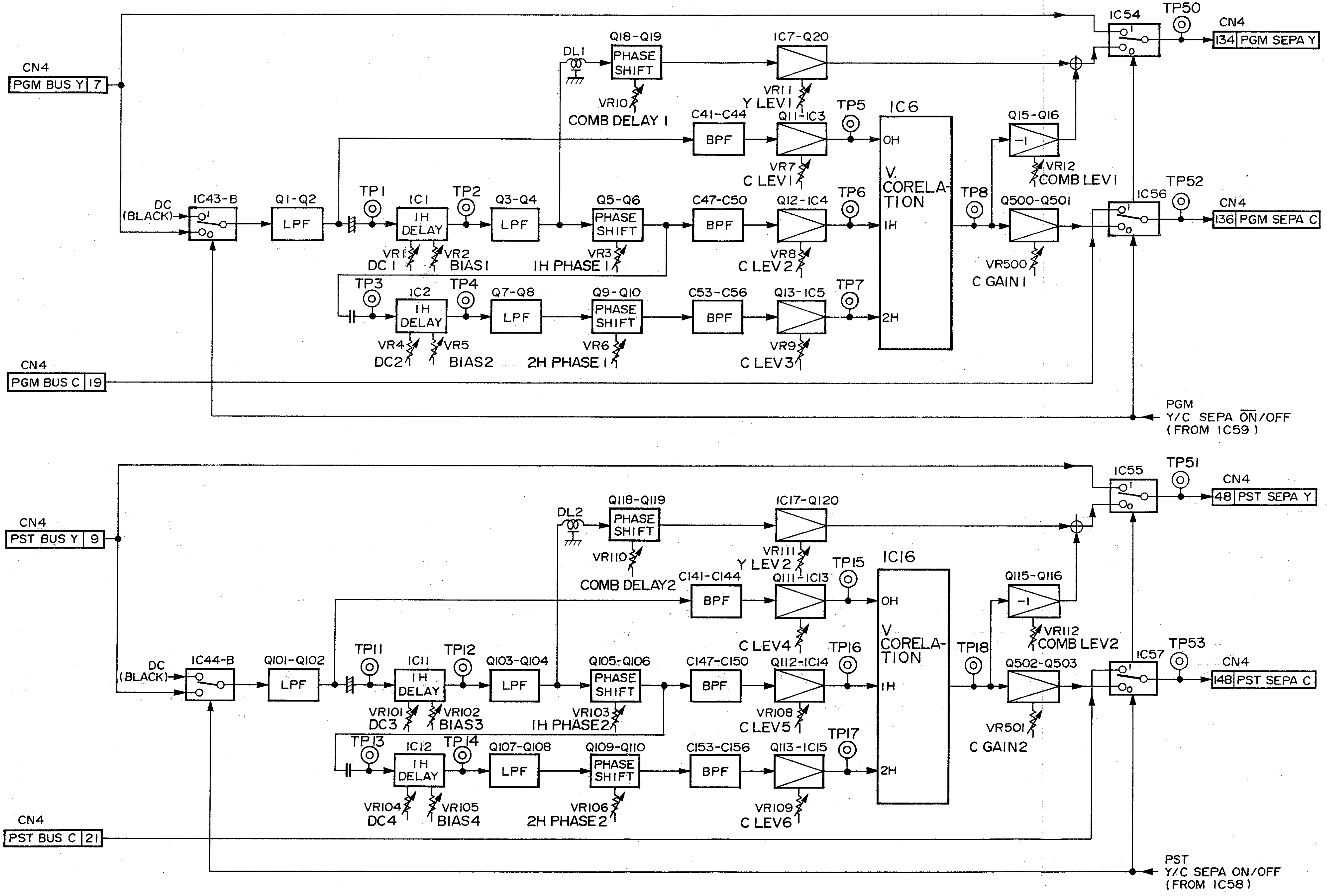

CN4
PGM BUS Y 7
IC54
TP50
CN4
134 PGM SEPA Y
Q18-Q19
DL1
PHASE SHIFT
IC7-Q20
VR10
COMB DELAY 1
VR11
Y LEV1
C41-C44
BPF
Q11-IC3
TP5
IC6
OH
V. CORELA-TION
1H
2H
Q15-Q16
-1
VR12
COMB LEV1
VR7
C LEV1
DC
(BLACK)
IC43-B
Q1-Q2
LPF
TP1
IC1
1H DELAY
TP2
Q3-Q4
LPF
Q5-Q6
PHASE SHIFT
C47-C50
BPF
Q12-IC4
TP6
TP8
Q500-Q501
IC56
TP52
CN4
136 PGM SEPA C
VR1
DC1
VR2
BIAS1
VR3
1H PHASE 1
VR8
C LEV2
VR500
C GAIN1
TP3
IC2
1H DELAY
TP4
Q7-Q8
LPF
Q9-Q10
PHASE SHIFT
C53-C56
BPF
Q13-IC5
TP7
VR4
DC2
VR5
BIAS2
VR6
2H PHASE 1
VR9
C LEV3
CN4
PGM BUS C 19
PGM
Y/C SEPA ON/OFF
(FROM IC59)
IC55
TP51
CN4
48 PST SEPA Y
Q118-Q119
DL2
PHASE SHIFT
IC17-Q120
CN4
PST BUS Y 9
VR110
COMB DELAY2
VR111
Y LEV2
C141-C144
BPF
Q111-IC13
TP15
IC16
OH
V CORELA-TION
1H
2H
Q115-Q116
-1
VR112
COMB LEV2
C LEV4
TP16
DC
(BLACK)
IC44-B
Q101-Q102
LPF
TP11
IC11
1H DELAY
TP12
Q103-Q104
LPF
Q105-Q106
PHASE SHIFT
C147-C150
BPF
Q112-IC14
TP18
Q502-Q503
IC57
TP53
CN4
148 PST SEPA C
VR101
DC3
VR102
BIAS3
VR103
1H PHASE2
VR108
C LEV5
VR501
C GAIN2
TP13
IC12
1H DELAY
TP14
Q107-Q108
LPF
Q109-Q110
PHASE SHIFT
C153-C156
BPF
Q113-IC15
TP17
VR104
DC4
VR105
BIAS4
VR106
2H PHASE 2
VR109
C LEV6
CN4
PST BUS C 21
PST
Y/C SEPA ON/OFF
(FROM IC58)

Fig. 1-8 Block diagram of Y/C SEPA board (NTSC)

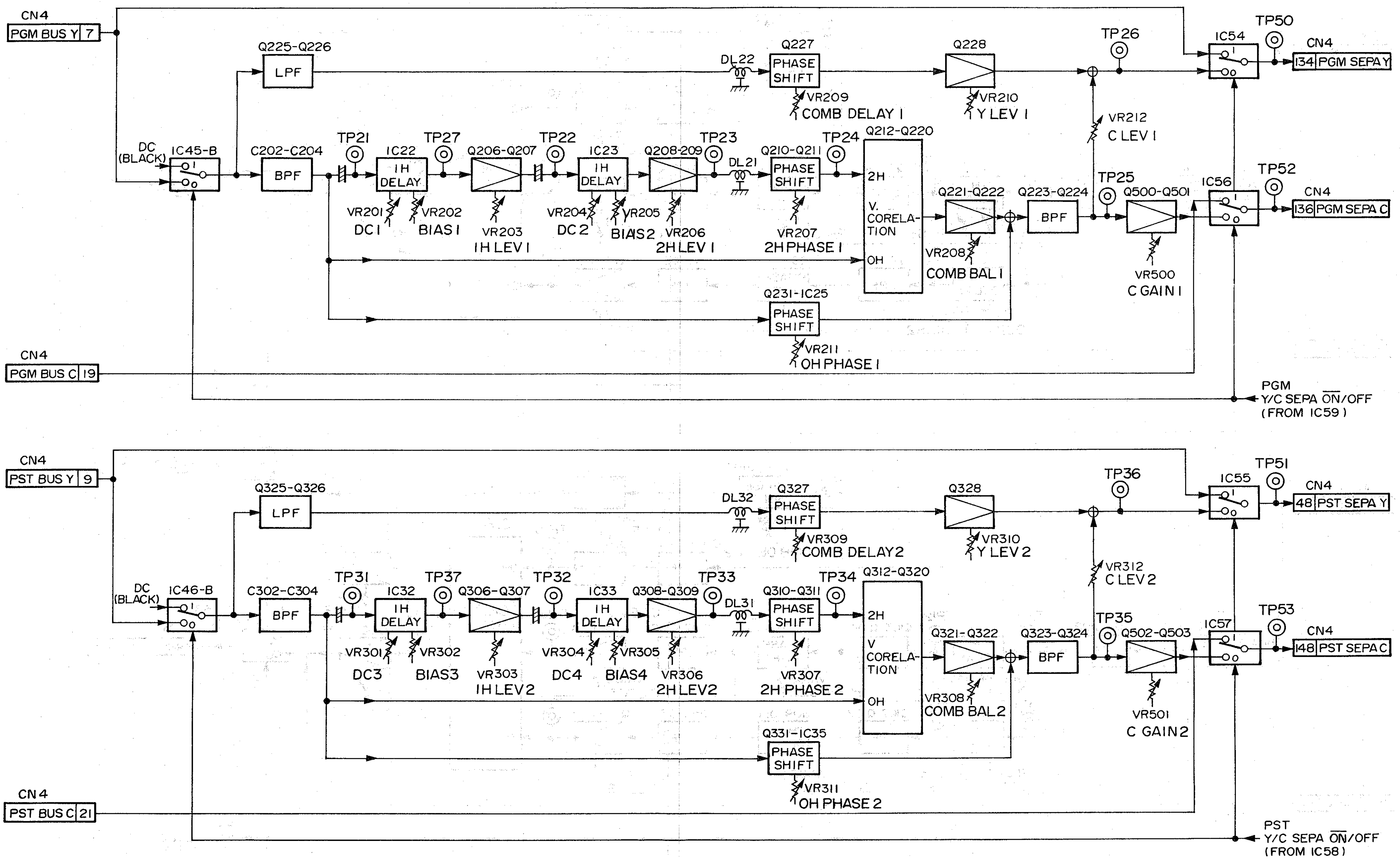

CN4
PGM BUS Y 7
Q225-Q226
LPF
DL22
Q227
PHASE SHIFT
VR209
COMB DELAY 1
Q228
VR210
Y LEV 1
TP26
IC54
TP50
CN4
134 PGM SEPA Y
DC (BLACK)
IC45-B
C202-C204
BPF
TP21
IC22
1H DELAY
TP27
Q206-Q207
TP22
IC23
1H DELAY
Q208-209
TP23
DL21
Q210-Q211
PHASE SHIFT
TP24
Q212-Q220
2H
V. CORELA-TION
OH
VR212
C LEV 1
Q221-Q222
Q223-Q224
BPF
TP25
Q500-Q501
IC56
TP52
CN4
136 PGM SEPA C
VR201
DC 1
VR202
BIAS 1
VR203
1H LEV 1
VR204
DC 2
VR205
BIAS2
VR206
2H LEV 1
VR207
2H PHASE 1
VR208
COMB BAL 1
VR500
C GAIN 1
Q231-IC25
PHASE SHIFT
VR211
OH PHASE 1
CN4
PGM BUS C 19
PGM
Y/C SEPA ON/OFF
(FROM IC59)
CN4
PST BUS Y 9
Q325-Q326
LPF
DL32
Q327
PHASE SHIFT
VR309
COMB DELAY2
Q328
VR310
Y LEV 2
TP36
IC55
TP51
CN4
48 PST SEPA Y
DC (BLACK)
IC46-B
C302-C304
BPF
TP31
IC32
1H DELAY
TP37
Q306-Q307
TP32
IC33
1H DELAY
Q308-Q309
TP33
DL31
Q310-Q311
PHASE SHIFT
TP34
Q312-Q320
2H
V CORELA-TION
OH
VR312
C LEV 2
Q321-Q322
Q323-Q324
BPF
TP35
Q502-Q503
IC57
TP53
CN4
148 PST SEPA C
VR301
DC3
VR302
BIAS3
VR303
1H LEV2
VR304
DC4
VR305
BIAS4
VR306
2H LEV2
VR307
2H PHASE 2
VR308
COMB BAL 2
VR501
C GAIN2
Q331-IC35
PHASE SHIFT
VR311
OH PHASE 2
CN4
PST BUS C 21
PST
Y/C SEPA ON/OFF
(FROM IC58)

Fig. 1-8-P Block diagram of Y/C SEPA board (PAL)

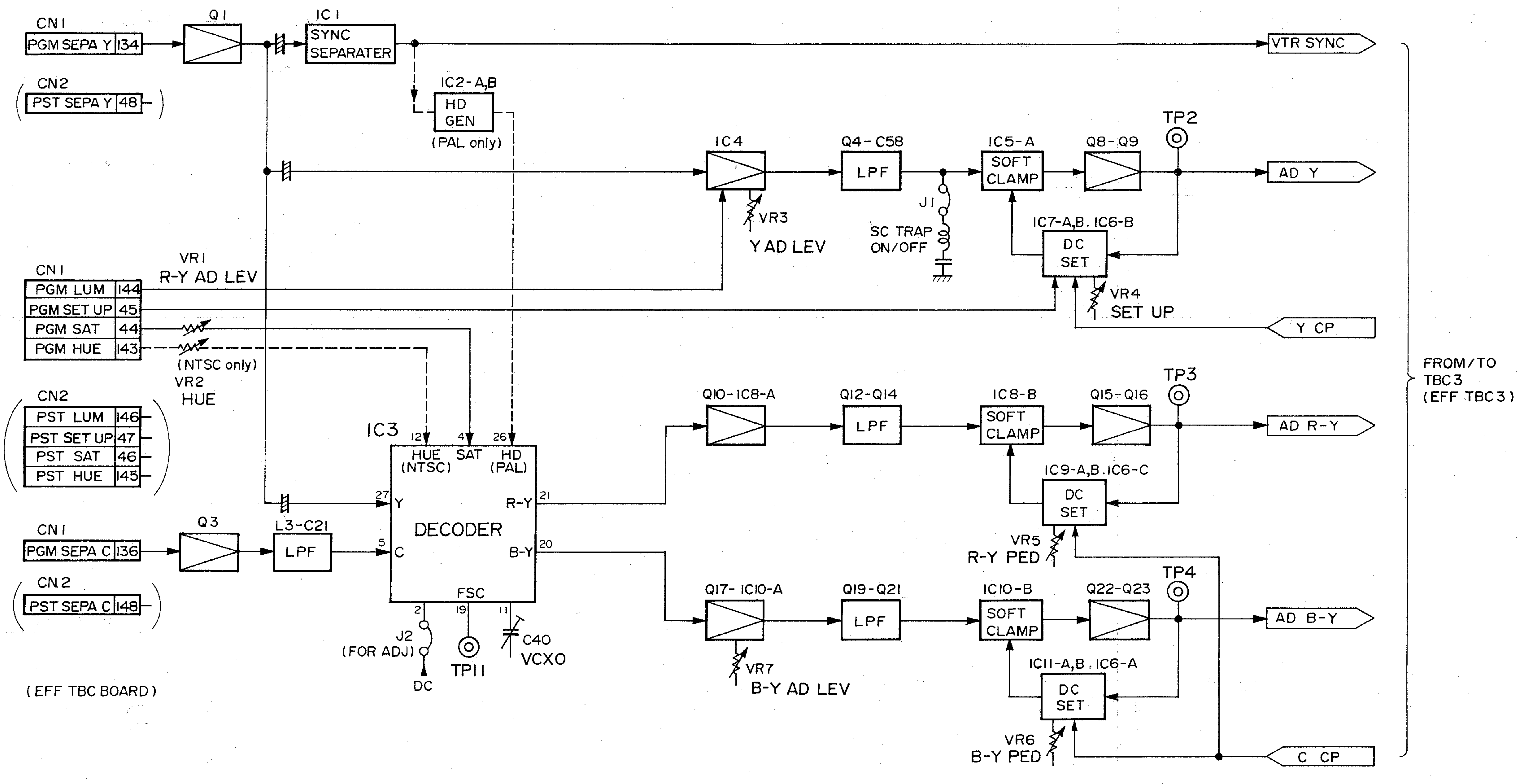

CN1
PGM SEPA Y 134
CN2
PST SEPA Y 48
Q1
IC1
SYNC SEPARATER
VTR SYNC
IC2-A,B
HD GEN
(PAL only)
IC4
VR3
Y AD LEV
Q4-C58
LPF
J1
SC TRAP ON/OFF
IC5-A
SOFT CLAMP
Q8-Q9
TP2
AD Y
IC7-A,B. IC6-B
DC SET
VR4
SET UP
Y CP
CN1
PGM LUM 144
PGM SET UP 45
PGM SAT 44
PGM HUE 143
VR1
R-Y AD LEV
(NTSC only)
VR2
HUE
CN2
PST LUM 146
PST SET UP 47
PST SAT 46
PST HUE 145
IC3
12 HUE (NTSC)
4 SAT
26 HD (PAL)
27 Y
5 C
DECODER
21 R-Y
20 B-Y
FSC
2
19
11
J2
(FOR ADJ)
DC
TP11
C40
VCXO
CN1
PGM SEPA C 136
CN2
PST SEPA C 148
Q3
L3-C21
LPF
Q10-IC8-A
Q12-Q14
LPF
IC8-B
SOFT CLAMP
Q15-Q16
TP3
AD R-Y
IC9-A,B. IC6-C
DC SET
VR5
R-Y PED
Q17-IC10-A
VR7
B-Y AD LEV
Q19-Q21
LPF
IC10-B
SOFT CLAMP
Q22-Q23
TP4
AD B-Y
IC11-A,B. IC6-A
DC SET
VR6
B-Y PED
C CP
FROM/TO TBC3 (EFF TBC3)
(EFF TBC BOARD)

Fig. 1-9 Block diagram of TBC 1 board and EFF TBC 1 board

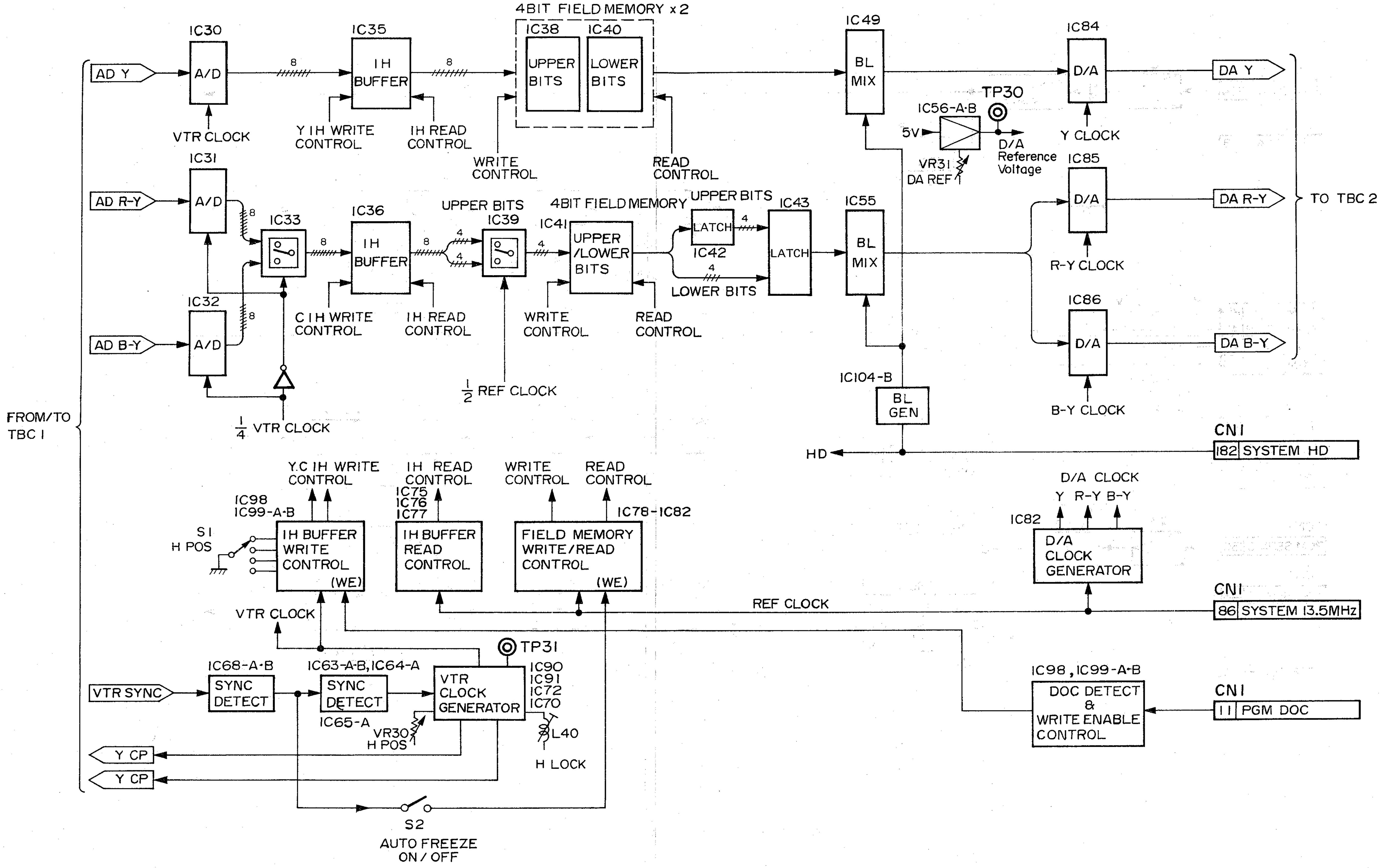

FROM/TO TBC I
AD Y
IC30
A/D
VTR CLOCK
IC35
IH BUFFER
Y IH WRITE CONTROL
IH READ CONTROL
4BIT FIELD MEMORY x 2
IC38
UPPER BITS
IC40
LOWER BITS
WRITE CONTROL
READ CONTROL
IC49
BL MIX
IC84
D/A
Y CLOCK
DA Y
TP30
IC56-A-B
5V
VR31 DA REF
D/A Reference Voltage
AD R-Y
IC31
A/D
IC33
IC36
IH BUFFER
UPPER BITS
IC39
4BIT FIELD MEMORY
IC41
UPPER /LOWER BITS
UPPER BITS
LATCH
IC42
IC43
LATCH
LOWER BITS
IC55
BL MIX
IC85
D/A
R-Y CLOCK
DA R-Y
TO TBC 2
C IH WRITE CONTROL
IH READ CONTROL
WRITE CONTROL
READ CONTROL
IC32
AD B-Y
A/D
1/4 VTR CLOCK
1/2 REF CLOCK
IC104-B
BL GEN
IC86
D/A
B-Y CLOCK
DA B-Y
HD
CN1
182 SYSTEM HD
8
4
Y.C IH WRITE CONTROL
IH READ CONTROL
WRITE CONTROL
READ CONTROL
IC98
IC99-A-B
S1 H POS
IH BUFFER WRITE CONTROL (WE)
IC75
IC76
IC77
IH BUFFER READ CONTROL
IC78-IC82
FIELD MEMORY WRITE/READ CONTROL (WE)
D/A CLOCK
Y R-Y B-Y
IC82
D/A CLOCK GENERATOR
VTR CLOCK
REF CLOCK
CN1
86 SYSTEM 13.5MHz
TP31
IC68-A-B
VTR SYNC
SYNC DETECT
IC63-A-B, IC64-A
SYNC DETECT
IC65-A
VTR CLOCK GENERATOR
VR30 H POS
IC90
IC91
IC72
IC70
L40
H LOCK
IC98, IC99-A-B
DOC DETECT & WRITE ENABLE CONTROL
CN1
11 PGM DOC
Y CP
Y CP
S2
AUTO FREEZE ON / OFF

Fig. 1-10 Block diagram of TBC 3 board

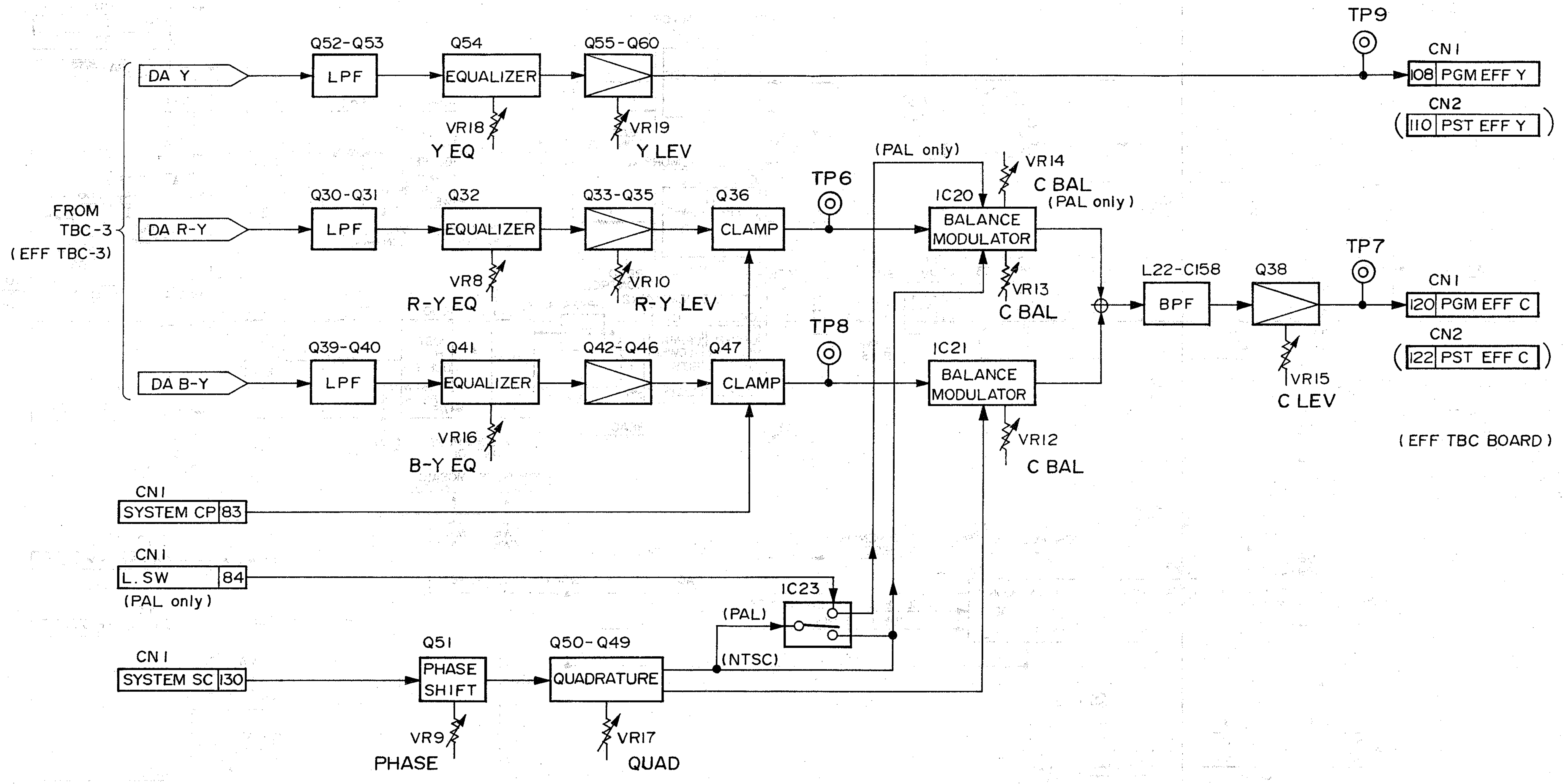

FROM
TBC-3
(EFF TBC-3)
DA Y
Q52-Q53
LPF
Q54
EQUALIZER
VR18
Y EQ
Q55-Q60
VR19
Y LEV
TP9
CN1
108 PGM EFF Y
CN2
(110 PST EFF Y)
DA R-Y
Q30-Q31
LPF
Q32
EQUALIZER
VR8
R-Y EQ
Q33-Q35
VR10
R-Y LEV
Q36
CLAMP
TP6
(PAL only)
IC20
BALANCE MODULATOR
VR14
C BAL
(PAL only)
VR13
C BAL
L22-C158
BPF
Q38
VR15
C LEV
TP7
CN1
120 PGM EFF C
CN2
(122 PST EFF C)
DA B-Y
Q39-Q40
LPF
Q41
EQUALIZER
VR16
B-Y EQ
Q42-Q46
Q47
CLAMP
TP8
IC21
BALANCE MODULATOR
VR12
C BAL
(EFF TBC BOARD)
CN1
SYSTEM CP 83
CN1
L.SW 84
(PAL only)
IC23
(PAL)
(NTSC)
CN1
SYSTEM SC 130
Q51
PHASE SHIFT
VR9
PHASE
Q50-Q49
QUADRATURE
VR17
QUAD

Fig. 1-11 Block diagram of TBC 2 board and EFF TBC 4 board (output process)

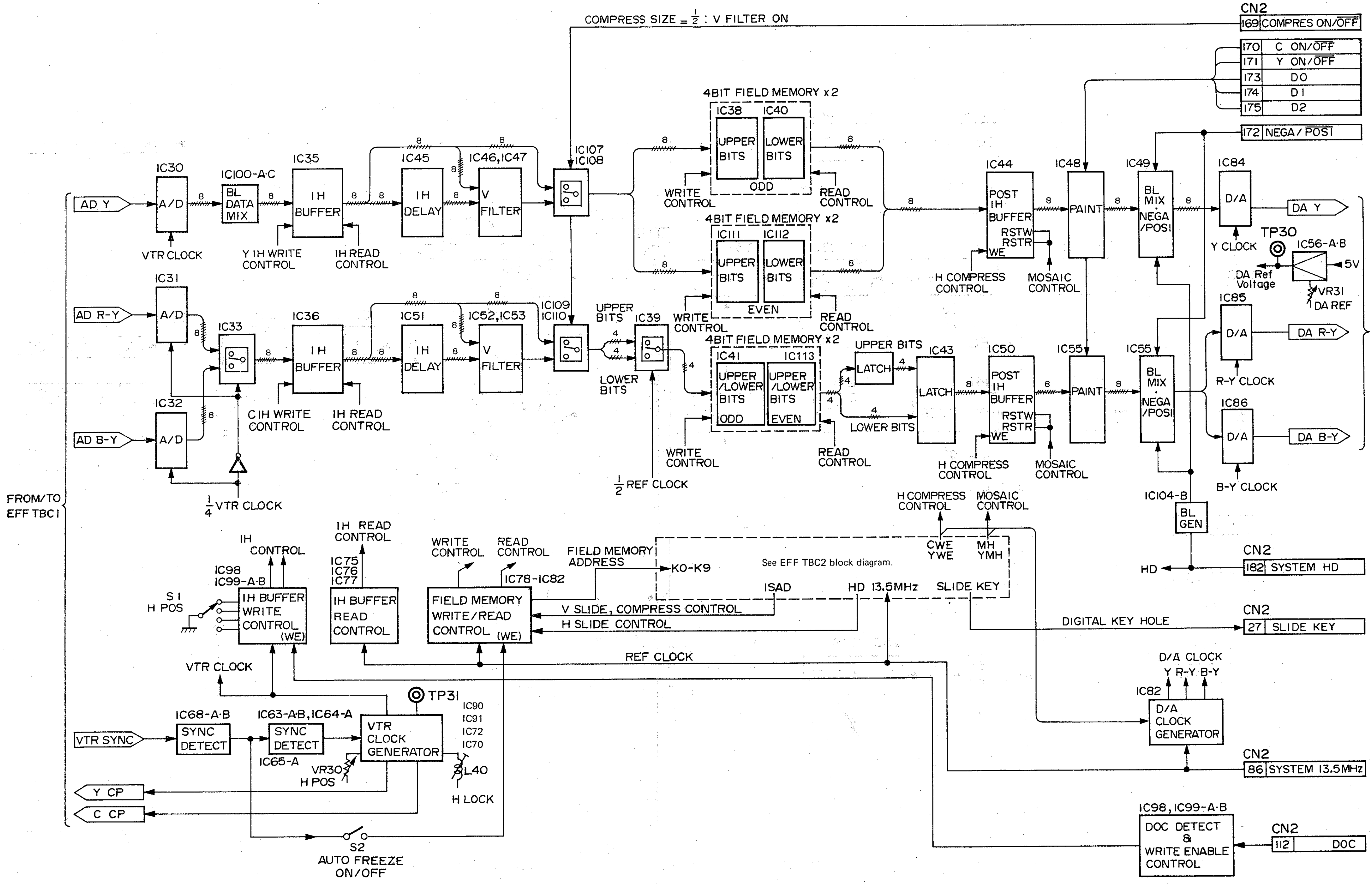

COMPRESS SIZE = 1/2 : V FILTER ON
CN2
169 COMPRES ON/OFF
170 C ON/OFF
171 Y ON/OFF
173 DO
174 D1
175 D2
172 NEGA/POSI
4BIT FIELD MEMORY x2
IC38
IC40
UPPER BITS
LOWER BITS
ODD
WRITE CONTROL
READ CONTROL
4BIT FIELD MEMORY x2
IC111
IC112
UPPER BITS
LOWER BITS
EVEN
WRITE CONTROL
READ CONTROL
4BIT FIELD MEMORY x2
IC41
IC113
UPPER /LOWER BITS
UPPER /LOWER BITS
ODD
EVEN
WRITE CONTROL
READ CONTROL
IC107 IC108
IC109 IC110
IC39
UPPER BITS
LOWER BITS
1/2 REF CLOCK
IC30
A/D
AD Y
VTR CLOCK
IC100-A·C
BL DATA MIX
IC35
1H BUFFER
Y 1H WRITE CONTROL
1H READ CONTROL
IC45
1H DELAY
IC46, IC47
V FILTER
IC31
A/D
AD R-Y
IC33
IC32
A/D
AD B-Y
1/4 VTR CLOCK
IC36
1H BUFFER
C 1H WRITE CONTROL
1H READ CONTROL
IC51
1H DELAY
IC52, IC53
V FILTER
FROM/TO EFF TBC1
8
4
IC44
POST 1H BUFFER
RSTW
RSTR
WE
H COMPRESS CONTROL
MOSAIC CONTROL
IC48
PAINT
IC49
BL MIX · NEGA /POSI
IC84
D/A
Y CLOCK
DA Y
TP30
IC56-A·B
5V
DA Ref Voltage
VR31 DA REF
IC85
D/A
DA R-Y
R-Y CLOCK
IC86
D/A
DA B-Y
B-Y CLOCK
TO EFF TBC4
UPPER BITS
LATCH
IC43
LATCH
LOWER BITS
IC50
POST 1H BUFFER
RSTW
RSTR
WE
H COMPRESS CONTROL
MOSAIC CONTROL
IC55
PAINT
IC55
BL MIX · NEGA /POSI
IC104-B
BL GEN
H COMPRESS CONTROL
MOSAIC CONTROL
CWE YWE
MH YMH
See EFF TBC2 block diagram.
FIELD MEMORY ADDRESS
K0-K9
ISAD
HD 13.5MHz
SLIDE KEY
HD
CN2
182 SYSTEM HD
DIGITAL KEY HOLE
CN2
27 SLIDE KEY
1H CONTROL
IC98 IC99-A·B
S1 H POS
1H BUFFER WRITE CONTROL (WE)
1H READ CONTROL
IC75 IC76 IC77
1H BUFFER READ CONTROL
WRITE CONTROL
READ CONTROL
IC78-IC82
FIELD MEMORY WRITE/READ CONTROL (WE)
V SLIDE, COMPRESS CONTROL
H SLIDE CONTROL
REF CLOCK
VTR CLOCK
D/A CLOCK
Y R-Y B-Y
IC82
D/A CLOCK GENERATOR
CN2
86 SYSTEM 13.5MHz
TP31
IC90 IC91 IC72 IC70
IC68-A·B
SYNC DETECT
VTR SYNC
IC63-A·B, IC64-A
SYNC DETECT
IC65-A
VTR CLOCK GENERATOR
VR30 H POS
L40
H LOCK
Y CP
C CP
S2
AUTO FREEZE ON/OFF
IC98, IC99-A·B
DOC DETECT & WRITE ENABLE CONTROL
CN2
112 DOC

Fig. 1-12 Block diagram of EFF TBC 3 board (digital process)

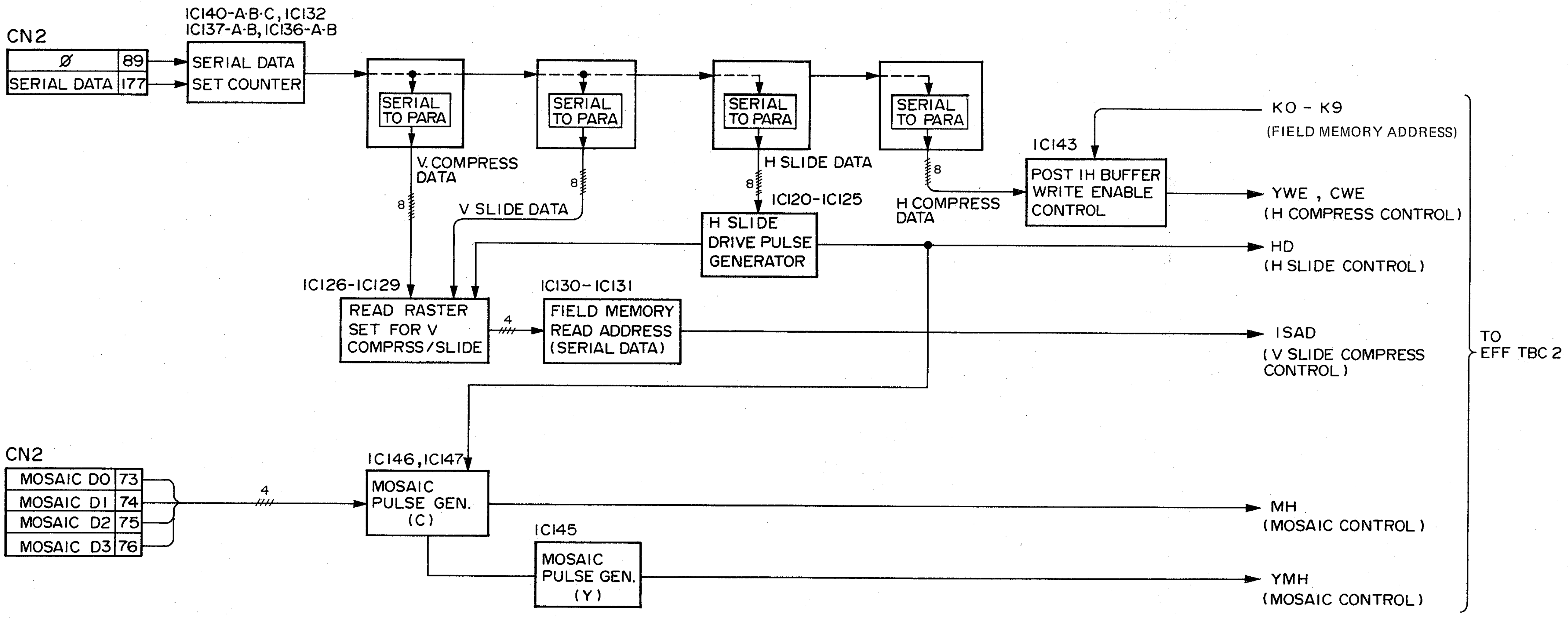

CN2
Ø 89
SERIAL DATA 177
IC140-A·B·C, IC132
IC137-A·B, IC136-A·B
SERIAL DATA
SET COUNTER
SERIAL
TO PARA
SERIAL
TO PARA
SERIAL
TO PARA
SERIAL
TO PARA
V. COMPRESS
DATA
8
8
V SLIDE DATA
H SLIDE DATA
8
IC120-IC125
8
H COMPRESS
DATA
IC143
POST IH BUFFER
WRITE ENABLE
CONTROL
K0 - K9
(FIELD MEMORY ADDRESS)
YWE , CWE
(H COMPRESS CONTROL)
H SLIDE
DRIVE PULSE
GENERATOR
HD
(H SLIDE CONTROL)
IC126-IC129
READ RASTER
SET FOR V
COMPRSS/SLIDE
4
IC130-IC131
FIELD MEMORY
READ ADDRESS
(SERIAL DATA)
ISAD
(V SLIDE COMPRESS
CONTROL)
TO
EFF TBC 2
CN2
MOSAIC D0 73
MOSAIC D1 74
MOSAIC D2 75
MOSAIC D3 76
4
IC146, IC147
MOSAIC
PULSE GEN.
(C)
MH
(MOSAIC CONTROL)
IC145
MOSAIC
PULSE GEN.
(Y)
YMH
(MOSAIC CONTROL)

Fig. 1-13 Block diagram of EFF TBC 2 (digital process)

SECTION 2
DISASSEMBLY

2.1 FUSE REPLACEMENT

Before replacing a fuse, the reason why it blew should be invested to prevent trouble from spreading. The malfunction should be repaired before replacing the fuse.

2.1.1 Fuse inside the control unit

1. Set the POWER switch of the control unit to "OFF", and disconnect the power cord from an AC outlet.
2. Open the control panel according to "2.2.3 OPENING THE CONTROL PANEL".
3. There is the fuse on the PS unit on the bottom side.

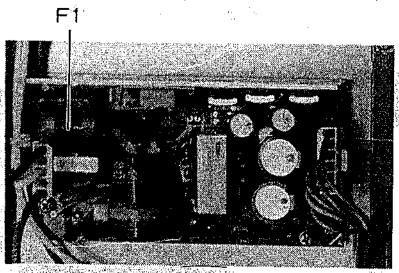


Fig. 2-1

For the safety and protection of the unit, replace only with fuse having specified part numbers.

Symbol No.	Specifications	Part No.
F1 (U ver.)	1 A 250 V	QMF51J2-1R0
F1 (E ver.)	T1 A 250 V	QMF51J2-1R0

2.1.2 Fuses inside the main unit

1. Set the POWER switch of the main unit to "OFF" and disconnect the power cord from an AC outlet.
2. Open the rear panel following the section 2.3.3.
3. There is a fuse on PS unit.

For safety and protection of the unit, replace only with fuses having the specified part numbers.

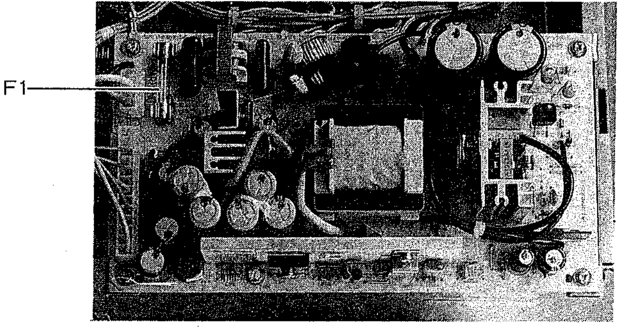


Fig. 2-2-1

- Affected serial numbers:

U version : ***50024 and before
EG version : ***50035 and before
EK version : Not affected
EA version : Not affected

Symbol No.	Specifications	Part No.
F1 (U ver.)	3 A 250 V	SCV1942-F1
F1 (E ver.)	T3.15 A 250 V	QMF51E2-3R15

- Affected serial numbers:

U version : ***50025 and after
EG version : ***50036 and after
EK version : ***50001 and after
EA version : ***50001 and after

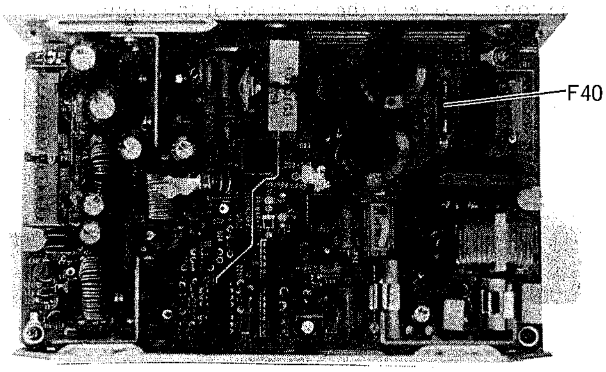
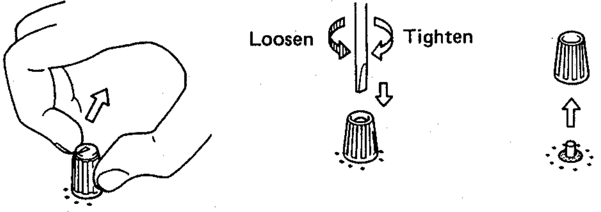


Fig. 2-2-2

Symbol No.	Specifications	Part No.
F40 (U ver.)	6.3 A 250 V	SCV1986-F40U
F40 (E ver.)	T6.3 A 250 V	SCV1986-F40E

2.2 CONTROL UNIT

2.2.1 Removal of knob



Remove the cap.

Loosen the screw turning counterclockwise with a screwdriver.

Remove the knob.

Fig. 2-3

2.2.2 Replacement of assembly lamp

a) Small-sized button

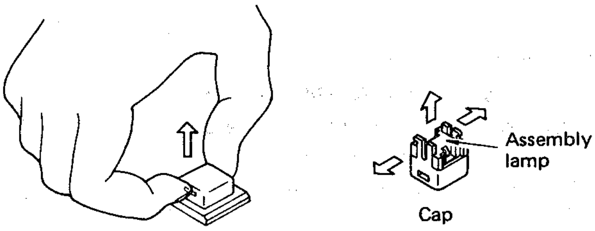


Fig. 2-4

1. Pull off the cap with a finger tip or a screwdriver by inserting its tip into the key slot.
2. Remove the assembly lamp out of the cap, then insert a new lamp as before.

2.2.3 Opening th control panel

1. Remove three screws ① on the rear panel, then open the control panel in the direction of the arrow.

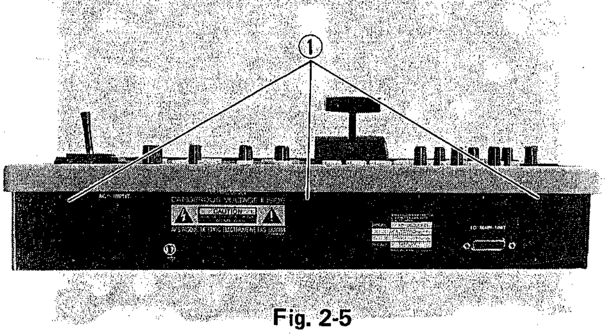


Fig. 2-5

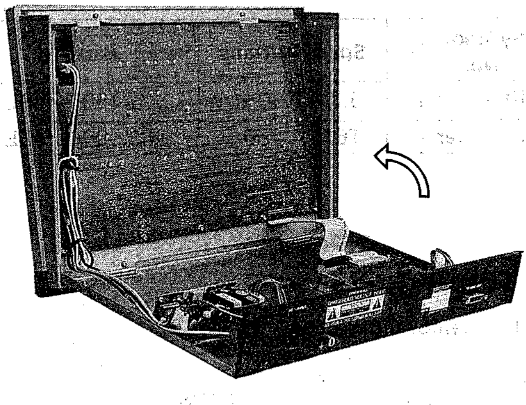


Fig. 2-6

2.2.4 Location of circuit boards

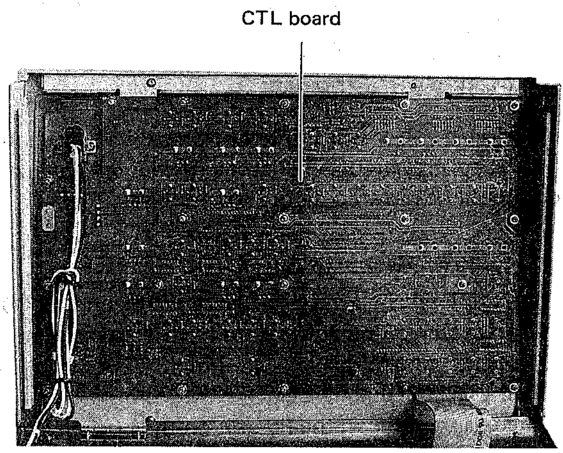


Fig. 2-7 (Panel side)

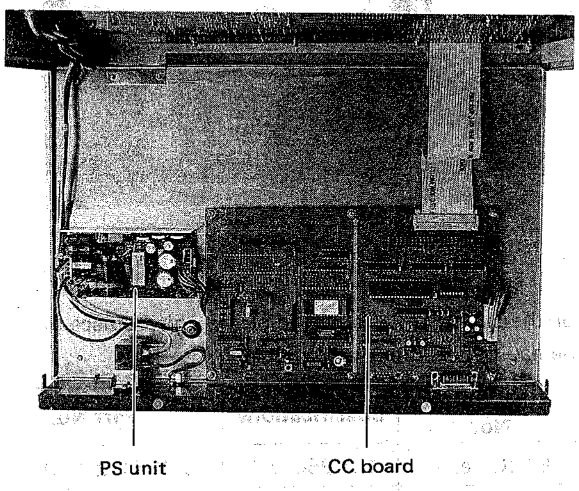


Fig. 2-8 (Bottom side)

2.2.5 Adjusting the torque of the fader lever

1. The torque adjustment of the fader lever can be done by turning a screws②.
   Turn it clockwise (↻) to increase the torque.
   Turn it counterclockwise (↺) to decrease the torque.

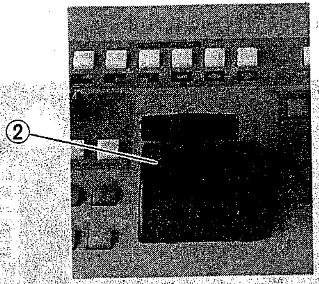


Fig. 2-9

2.2.6 Removal of the fader lever

1. Remove a screw ③, then remove the knob Ⓐ.
2. Remove a screw ④, then remove the cover Ⓑ.

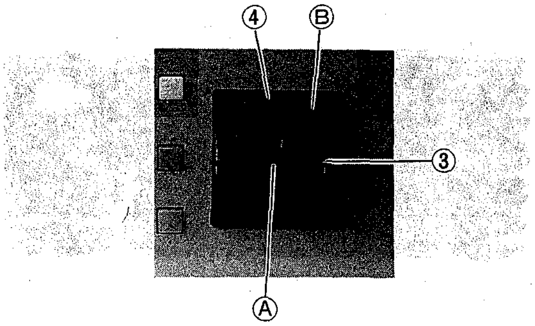


Fig. 2-10

3. Remove four screws ⑤, then take out the fader lever assembly.

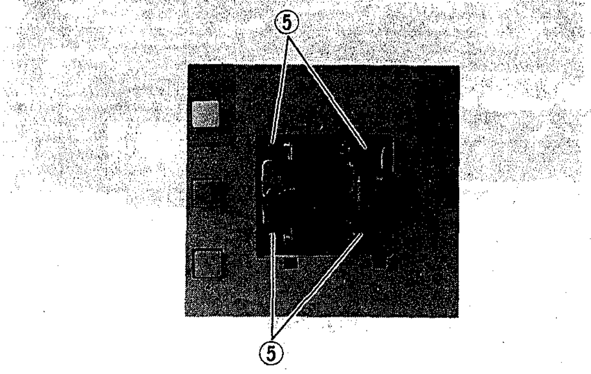


Fig. 2-11

4. The fader lever assembly can be removed completely by disconnecting the connector Ⓒ.

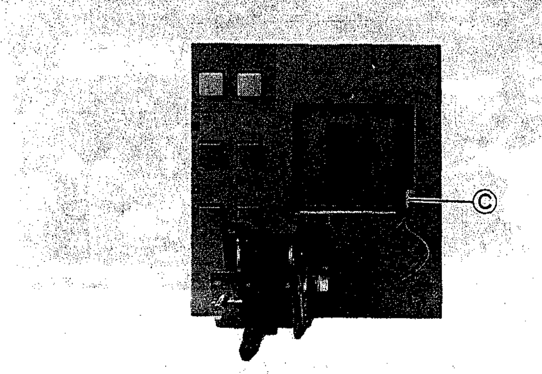


Fig. 2-12

2.2.7 Removal of the fader lever VR

1. Tilt the lever fully in the direction of the arrow.

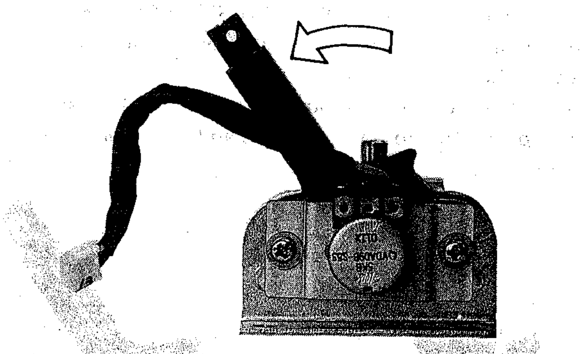


Fig. 2-13

2. Loosen a setscrew ⑥ which are fixing the VR axis to the lever by using hexagonal-head wrench from bottom side, then VR can be removed.

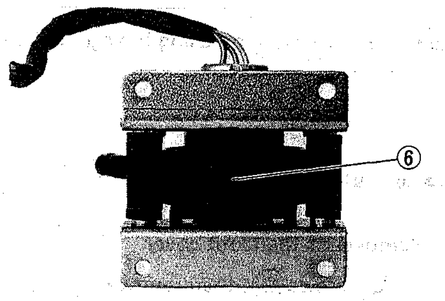


Fig. 2-14

3. Remove two screws ⑦.

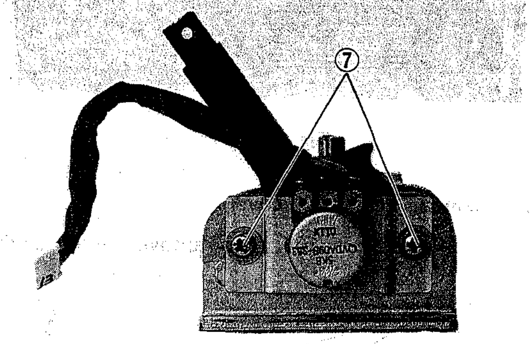


Fig. 2-15

2.2.8 Attaching of the fader lever VR

1. Attach the VR to the fader lever assembly by fixing two screws ⑦. (See Fig. 2-15.)
2. Tilt the fader lever torward the PRESET/KEY bus side.
3. Turn the axle of the VR Ⓖ fully counterclockwise by using a minus screwdriver.
4. Turn the axle of the VR clockwise by the minus screwdriver so that the notch of the axle and the lever become parallel.

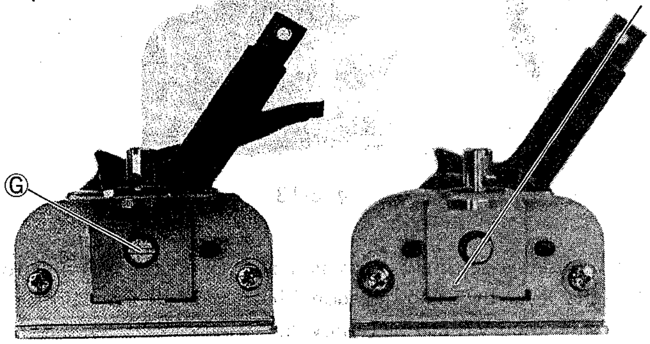


Fig. 2-16

5. Tighten a set screws ⑥ by using hexagonal-head wrench. (See Fig. 2-14)

2.3 MAIN UNIT

2.3.1 Removal of the front cover

1. Loosen four screws ⑨, then remove the front cover.

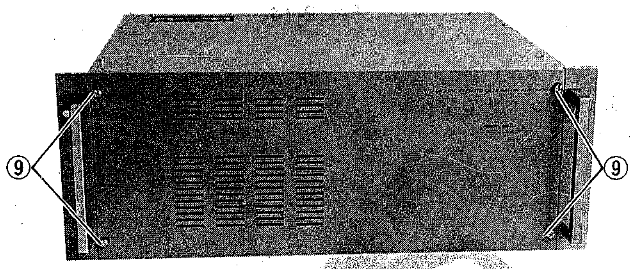


Fig. 2-17

2.3.2 Removal of the top cover

1. Remove seven screws ⑩, then remove the top cover.

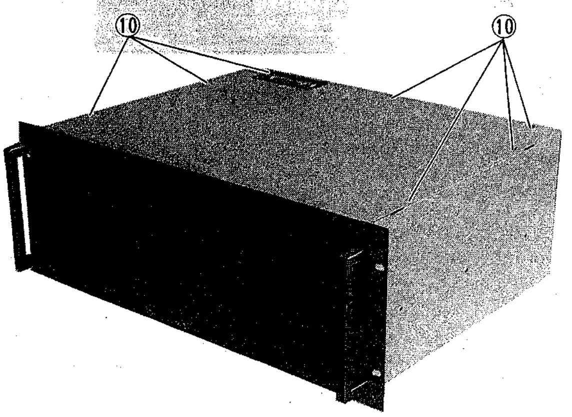


Fig. 2-18

2.3.3 Removal of the rear panel assembly

1. Remove seven screws ⑪ on the rear panel and disconnect five connectors Ⓓ on the MT board, then remove the rear panel assembly.

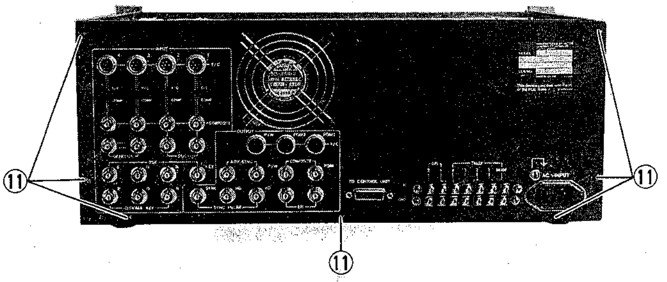


Fig. 2-19

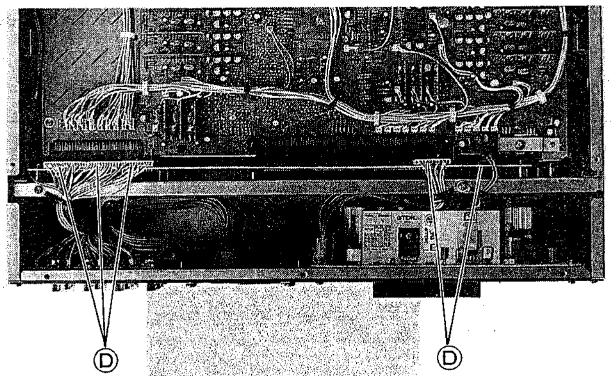


Fig. 2-20

2. By removing the rear panel, the PS unit, the BNC board and the TALLY board can be checked.

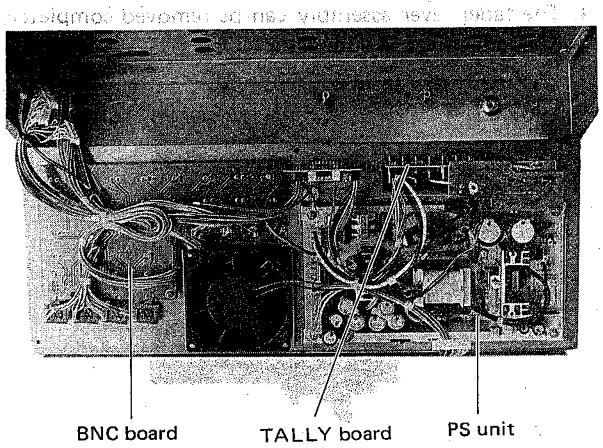


Fig. 2-21

2.3.4 *Removal of the plug-in circuit boards*

1. Remove the front cover following to the section 2.3.1.
2. Release the hooks Ⓔ (turn to front) on the both sides of the board simultaneously and pull the board out.

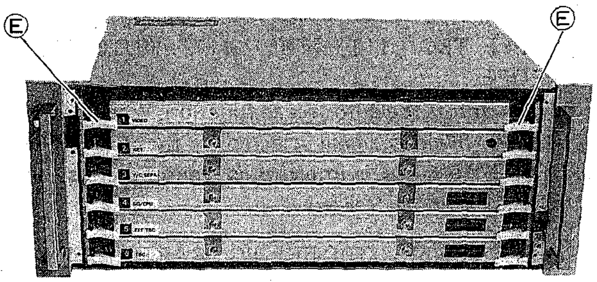


Fig. 2-22

- The plug-in circuit boards are:
  1. VIDEO board
  2. KEY board
  3. Y/C SEPA board
  4. SG/CPU board
  5. EFF TBC board
  6. TBC board

2.3.5 Removal of the PS unit

1. Remove the top cover according to the section 2.3.2.
2. Remove four screws ⑫ on the rear panel.

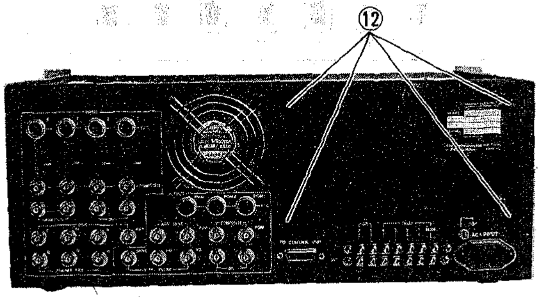


Fig. 2-23

3. Disconnect two connectors Ⓕ on the MT board and remove the wire-clamper by removing a screw ⑬ .

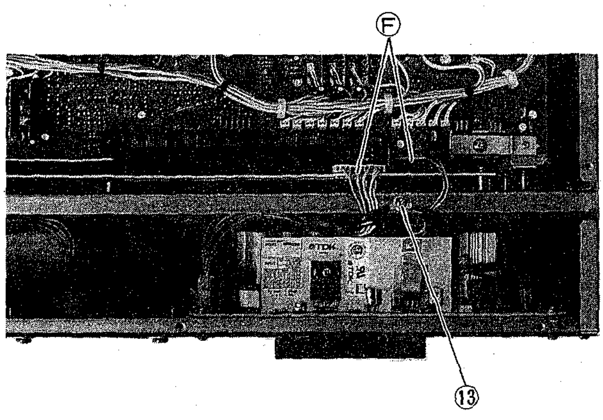


Fig. 2-24

4. Open the rear panel following the section 2.3.3, and remove the PS unit.

2.4 INNER CONNECTORS AND SWITCHES

- Underlined setting position of each item shows that set by factory at shipment.
- For the following procedure, refer to the Adjustment Parts Location diagrams of VIDEO, KEY, Y/C SEPA, SG/CPU, EFF TBC and TBC boards. (See section 3.)
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the connectors or switchies is located in.

2.4.1 VIDEO board (main unit)

- J1 [VIDEO - 2E] : 443/924
- J2 [VIDEO - 1P] : 443/924

These connectors are provided for the version of PAL system. In case of the version of NTSC system, short pins are provided instead of connectors.

They function to select video signals outputted from the PGM Y/C OUTPUT-1 connector on the rear panel.
When they are set to the "443" side, Y/C443 signal is outputted while Y/C924 signal is outputted by setting to the "924" side.

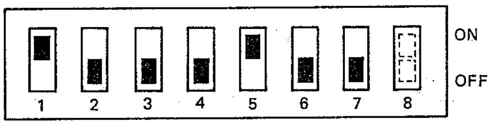
2.4.2 KEY board (main unit)

- J1 [KEY - 7K] : EXT/FILLY
  This connector functions to select DSK source when the DSK SOURCE button on the control panel is set to "EXT" (light goes out).
  When it is set to "EXT" side, signal that is inputted to the DSK KEY INPUT connector on the rear panel is the DSK source signal.
  When it is set to "FILLY" side, signal that is inputted to the DSK R/G/B INPUT connector is the DSK source signal.

2.4.3 SG/CPU board (main unit)

- J1 [SG/CPU - 6C] : VITC/NORMAL
  This connector functions to set the blanking width of video output signal which can be replaced by the KM-D600.
  When it is set to "VITC" side, changeable blanking period is set to 9H (NTSC)/7.5H (PAL). This setting enables the KM-D600 to output video signal containing VITC signal when it is inputted together with.
  When "NORMAL" side is selected, the blanking period can be changed in the range of 20H.

- S1 [SG/CPU - 5R]



Setting positions at shipment from factory

Switches 1 to 4 : For setting CPU operation.
Do not disturb the respective setting.

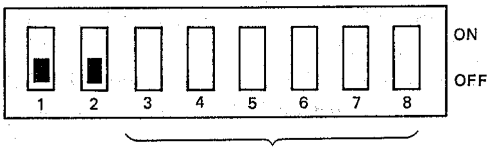
Switch 5 : ON/OFF switch of GPI function
ON : GPI function available
OFF : GPI function unavailable

Switch 6 : To select GPI mode
ON : Swap mode corresponding to MII type VTR KR-M820
OFF : Normal GPI mode

Switch 7 : For switching between 1600 and D600 mode.
Refer to the section 2.5 for detail of these mode.
ON : 1600 mode
OFF : D600 mode

Switch 8 : For switching between NTSC and PAL
This switch doesn't work for switching between NTSC and PAL television system.
It is used for mode change of CPU.
ON : PAL
OFF : NTSC

- S2 [SG/CPU - 9K]



Not used

Setting positions at shipment from factory

Switches 1 to 2 : For setting operation mode of CPU.
Do not disturb these setting.

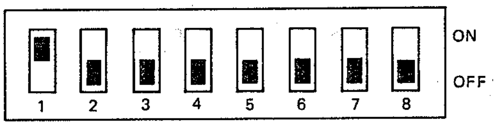
- S3 [SG/CPU - 11L]
  Hard reset button of the built-in CPU. When this button is pressed with the power on, the CPU and the memory are reset.
- S4 [SG/CPU - 11T], SC COARSE
  To adjust the phase of internal reference signal's sub-carrier to external sync. signal.
  The phase is adjustable in three steps of 0°, 120° and 240°. Fine adjustment of the phase can be performed by the SC FINE (VR107) [SG/CPU - 11S] while horizontal phase by the H. PHASE (VR106) [SG/CPU - 11S].

2.4.4 EFF TBC, TBC boards (main unit)

- S1 [EFF TBC - 10U] [TBC - 10M], C POS
  Used to set Y/C timing. Do not disturb this switch unreasonably.
  For detail of setting, refer to the section 3.
- S2 [EFF TBC - 11T] [TBC - 11T], AUTO FREEZE ON/OFF
  To turn on/off the auto freeze function. When it is set to ON, and, if video signal selected by the PROGRAM or PRESET/KEY bus is interrupted, the image just before the interruption is freezed.
- J1 [EFF TBC-5F] [TBC-5F], SC TRAP ON/OFF
  ON/OFF connector of the subcarrier trap circuit. When it is set to ON, chroma components remaining in Y signal are removed. However, it is recommended to set it to OFF in usual since setting to ON deteriorates waveform comparatively.
- J2 [EFF TBC - 9B] [TBC - 9B], ON/OFF
  Connector to be used for adjustment. For detail of usage refer to the section 3.

2.4.5 CC board (control unit)

- S1



Setting positions at shipment from factory

1–4, 8 : To set operation condition of the CPU.
Do not disturb the original positions.

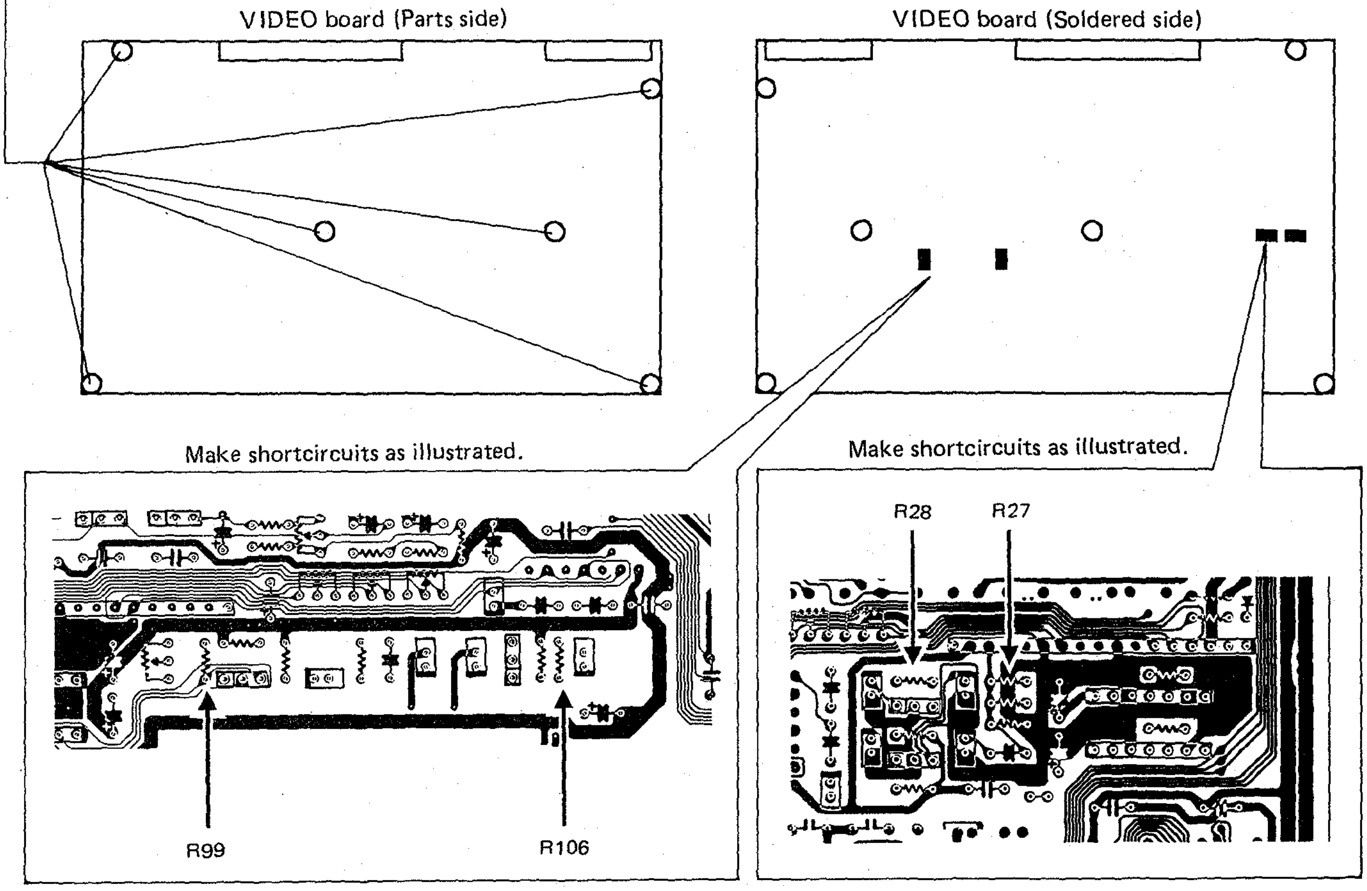
5–7 : Not used

2.5 1600 MODE AND D600 MODE

The KM-D600 prepares two kinds of modes: 1600 mode and D600 mode.
The D600 mode is the normal mode of the KM-D600, while the 1600 mode is an adjusting mode to process input video signals without the built-in TBC and Y/C separator. In the 1600 mode, operations by the control panel are the same as those by the KM-1600, and digital effects are consequently inoperative. In addition, this mode limits input video signal only to Y/C signal except in such a special case as adjustment.
The following describes procedure to set to the 1600 mode.

1. Remove the Y/C SEPA board, EFF TBC and TBC board from the main unit.
2. Set the switch S1-7 on the SG-CPU board to ON. (Refer to the section 2.4.3.)
3. Remove six screws from the VIDEO board and take off the shield plate.
4. Shortcircuit respective lands of R28, R27, R99 and R106 by shorting wires (without resistors inserted).
5. Fit the shield plate removed in the step 3 as it was.

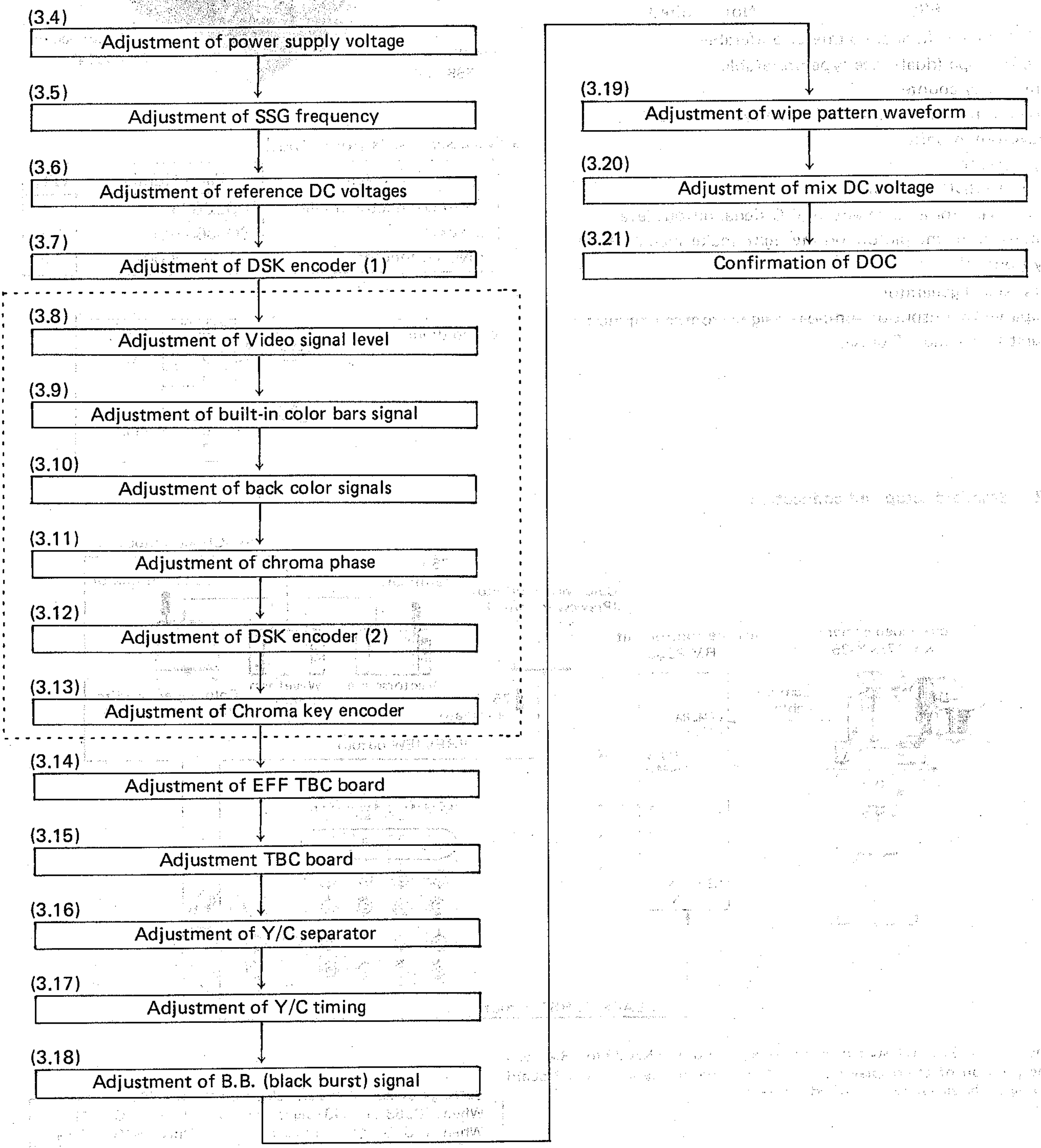
After adjustment finishes, make sure to reset to the D600 mode.


VIDEO board (Parts side)
VIDEO board (Soldered side)
Make shortcircuits as illustrated.
Make shortcircuits as illustrated.
R28
R27
R99
R106

SECTION 3
ADJUSTMENT PROCEDURE

3.1 FLOWCHART OF ELECTRICAL ADJUSTMENT

- Figures in parentheses ( ) show section numbers of items.
- Items in [- - - -] are subject to adjust in the 1600 mode. (For the 1600 mode, refer to Section 2.5.)



(3.4) Adjustment of power supply voltage
(3.5) Adjustment of SSG frequency
(3.6) Adjustment of reference DC voltages
(3.7) Adjustment of DSK encoder (1)
(3.8) Adjustment of Video signal level
(3.9) Adjustment of built-in color bars signal
(3.10) Adjustment of back color signals
(3.11) Adjustment of chroma phase
(3.12) Adjustment of DSK encoder (2)
(3.13) Adjustment of Chroma key encoder
(3.14) Adjustment of EFF TBC board
(3.15) Adjustment TBC board
(3.16) Adjustment of Y/C separator
(3.17) Adjustment of Y/C timing
(3.18) Adjustment of B.B. (black burst) signal
(3.19) Adjustment of wipe pattern waveform
(3.20) Adjustment of mix DC voltage
(3.21) Confirmation of DOC

3.2 REQUIRED EQUIPMENT AND STANDARD SETUP FOR ELECTRICAL ADJUSTMENT

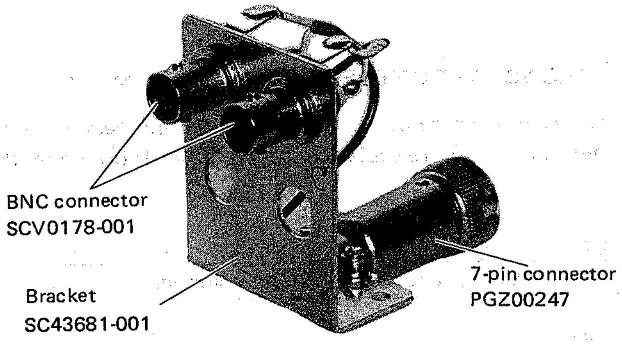
3.2.1 Necessary equipment and instruments

1. Color video camera with remote control unit
   (To be used as a color bar signal generator capable for outputting Y/C358 [Y/C443 for PAL] signal and R,G,B signals)
   - Combination examples

Color video camera	Remote control unit
KY-17, KY-25	RM-P200
KY-F30	Not required

2. DC voltmeter (digital voltmeter preferable)
3. Oscilloscope (dual-trace type preferable)
4. Frequency counter
5. Color video nominotor (understan type preferable)
6. Waveform monitor
7. Vectorscope
8. 7-pin to BNC conversion device
   (Necessary for adjustment of Y/C signal output level)
   Referring to the picture on the right, make such a device by yourself.
9. Test signal generator
   Capable for output of composite signal comprising multi-burst signal and 2T pulse.

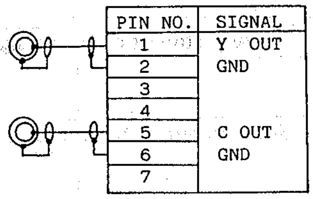
[Example of 7-pin to BNC conversion device]


BNC connector
SCV0178-001
Bracket
SC43681-001
7-pin connector
PGZ00247

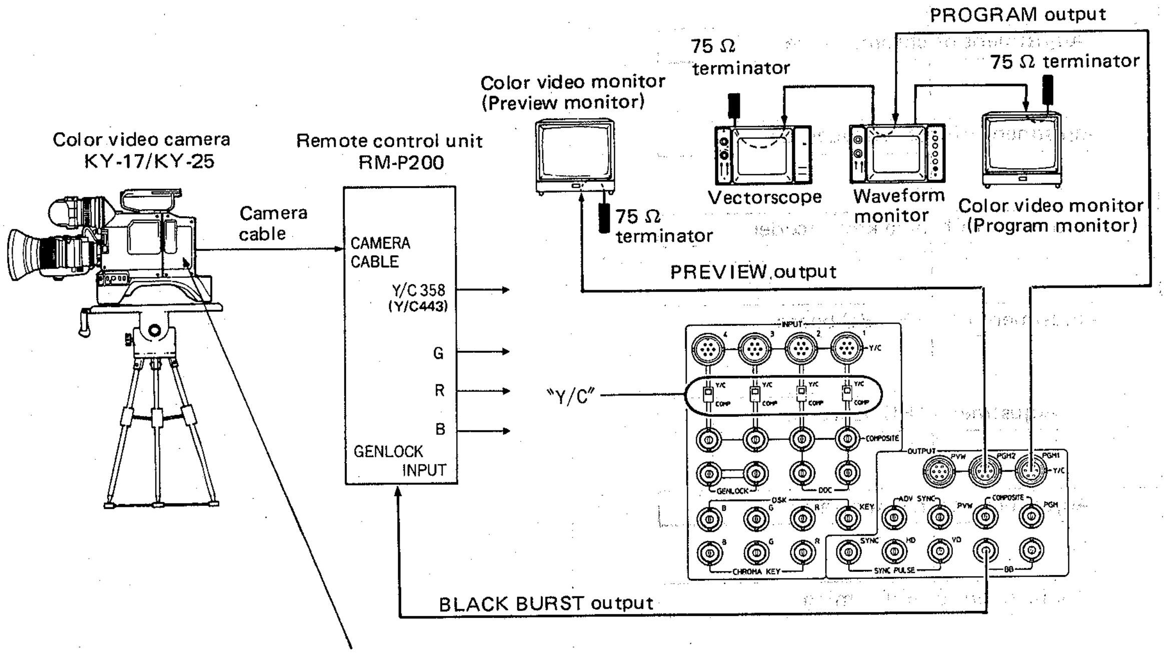
- Necessary parts (for output)

Parts Name	Parts Number	Q'ty
7-pin connector (Male)	PGZ00247	1
Bracket	SC43681-001	1
BNC connector	SCV0178-001	2

Wiring diagram


PIN NO.
SIGNAL
1
Y OUT
2
GND
3
4
5
C OUT
6
GND
7

3.2.2 Standard setup and connection

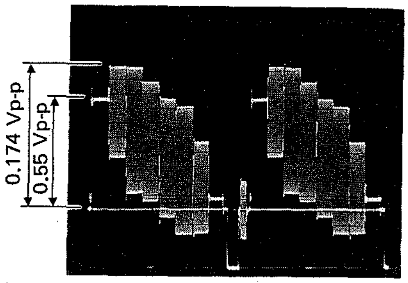

PROGRAM output
75 Ω terminator
75 Ω terminator
Color video monitor (Preview monitor)
Color video camera KY-17/KY-25
Remote control unit RM-P200
Camera cable
CAMERA CABLE
Y/C 358 (Y/C443)
G
R
B
GENLOCK INPUT
"Y/C"
75 Ω terminator
Vectorscope
Waveform monitor
Color video monitor (Program monitor)
PREVIEW output
INPUT
Y/C
COMPOSITE
GENLOCK
DSK
DOC
KEY
CHROMA KEY
OUTPUT
PVW
PGM2
PGM1
ADV SYNC
SYNC
HD
VD
SYNC PULSE
BB
BLACK BURST output

Set the CABLE SELECT switch on the side panel of the KA-20 to "RM" and set the position of the display switch (S1) located on the internal VP board according to the signal used in the adjustment.

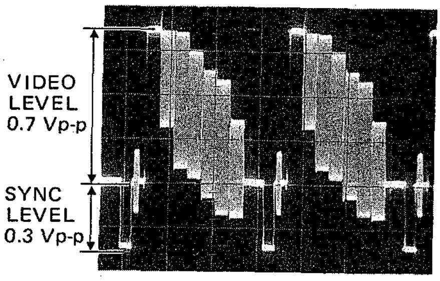
Setting position of the switch S1 on the KA-20's VP board
When YC358 (YC443) signal is used : Only "Y/C" ON
When R, G, B signals are used: Only "R/G/B" ON

3.2.3 Test signals necessary for adjustment

1. Color bars signal (composite)

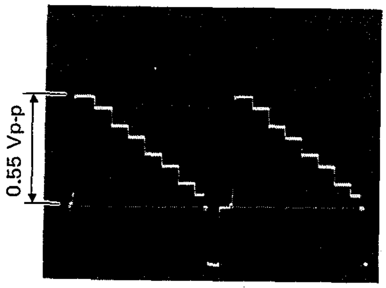


(NTSC)

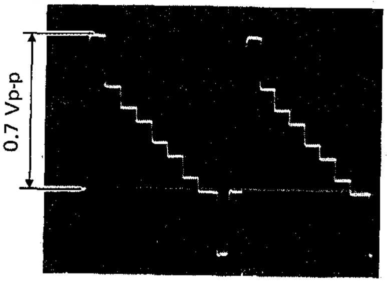


(PAL)

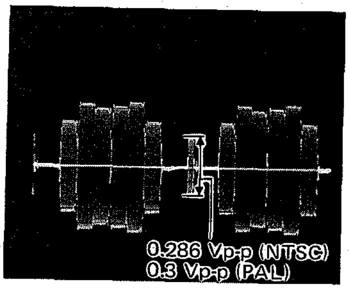
2. Color bars signal (Y/C)



Y (NTSC)

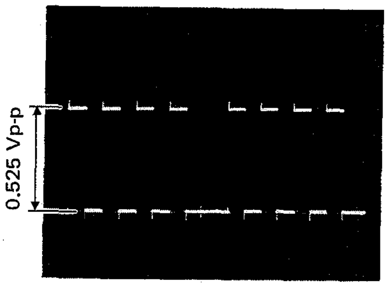


Y (PAL)

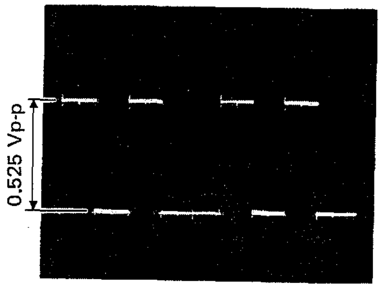


C

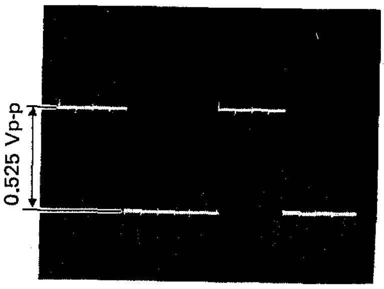
or bars signal (R/G/B)



B

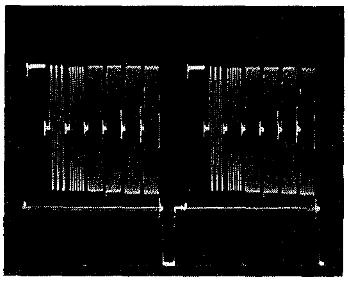


R

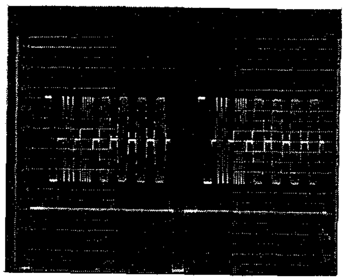


G

4. Multi-burst signal

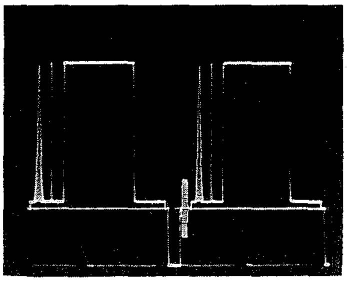


(NTSC)



(PAL)

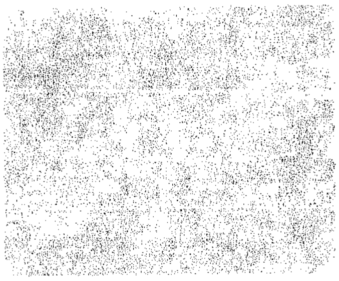
5. 2T pulse

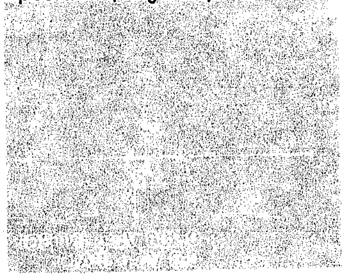


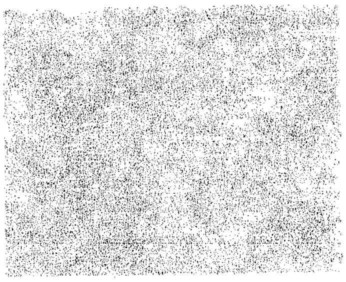
3.3 BEFORE ADJUSTMENT

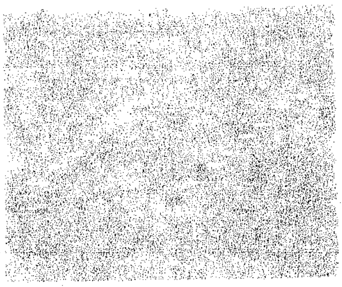
- Adjust every P.C. board with the top cover of the main body open.
  To open the top cover, refer to Section 2.3.2.
- For adjusting a P.C. board, place the board at the top section replacing with another board set uppermost.
  After adjustment, make sure to return them to the original position respectively.
- When connecting and disconnecting plug-in boards, make sure to turn off the main power switch.

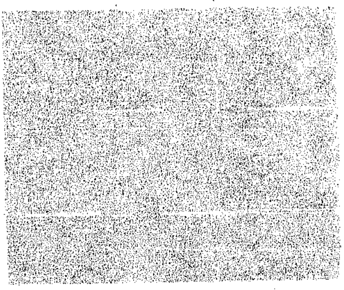
Note: Although plug-in boards can be plugged in to replace with another, do not set any board other than the TBC board and the EFF TBC board to the lowermost position (originally for the TBC board).

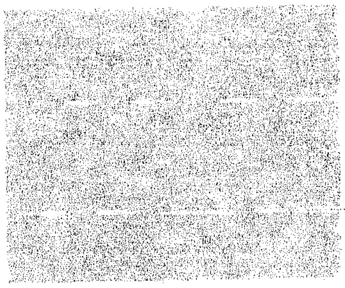


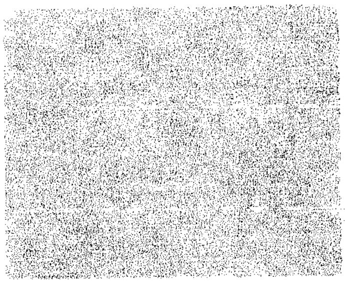


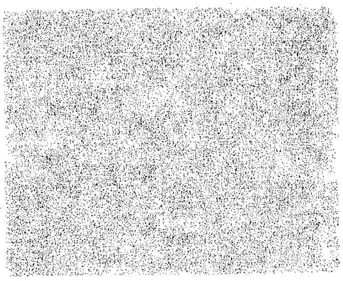


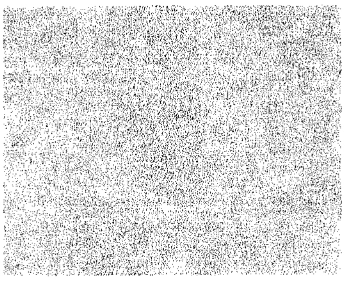


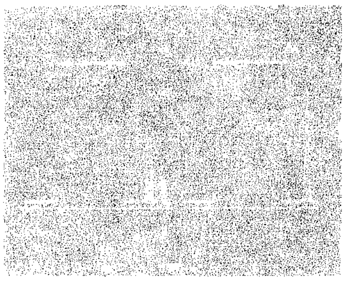




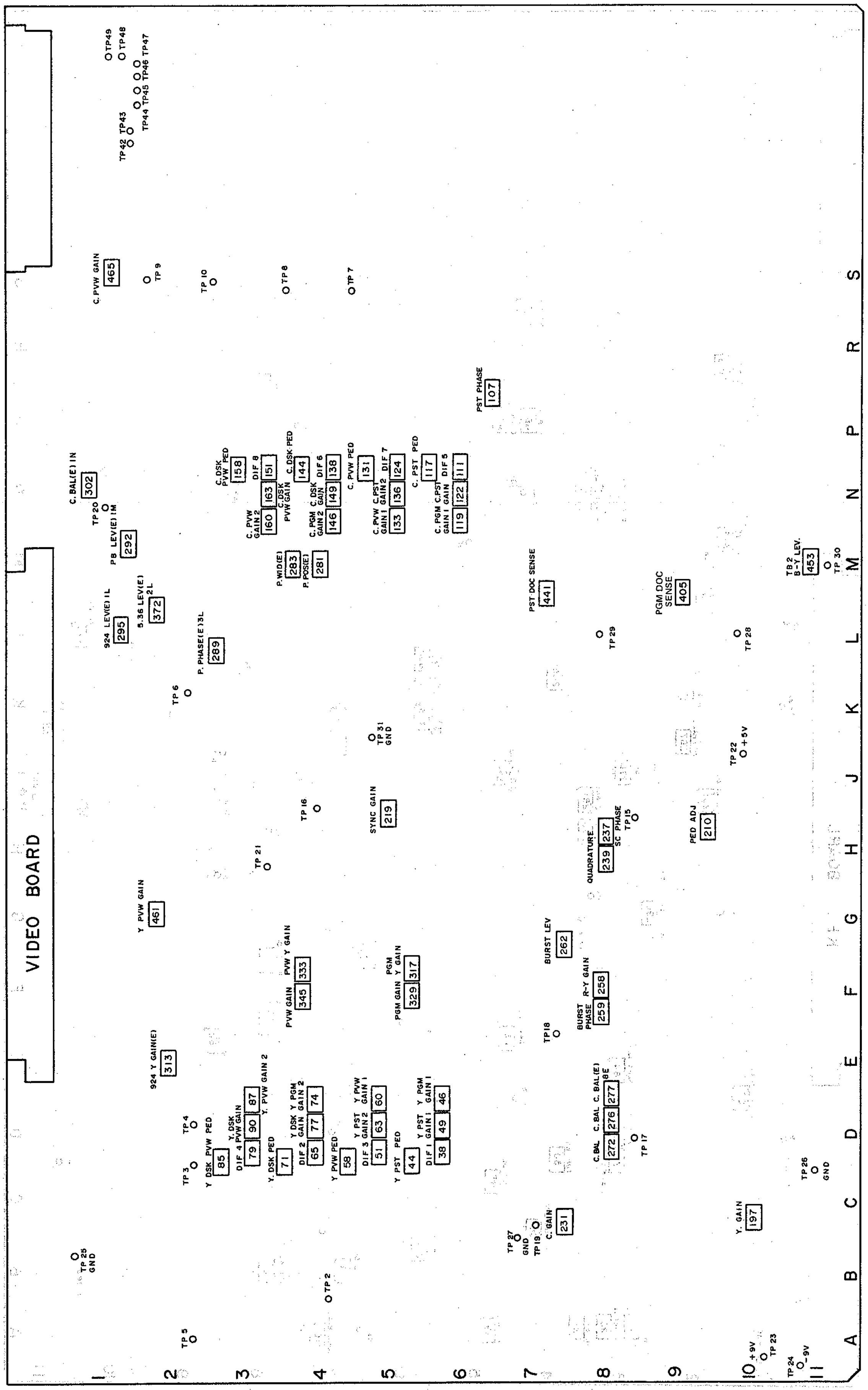




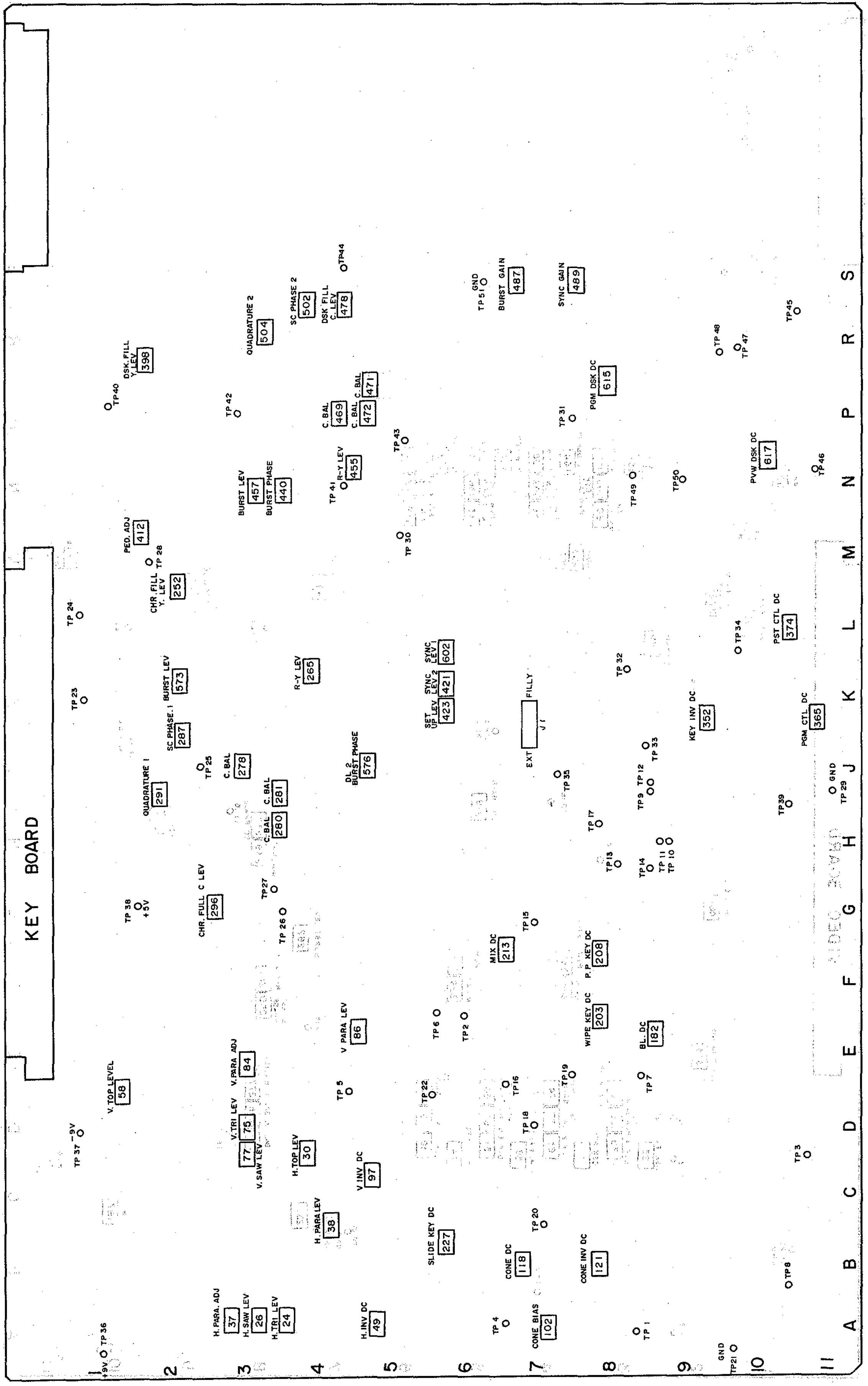




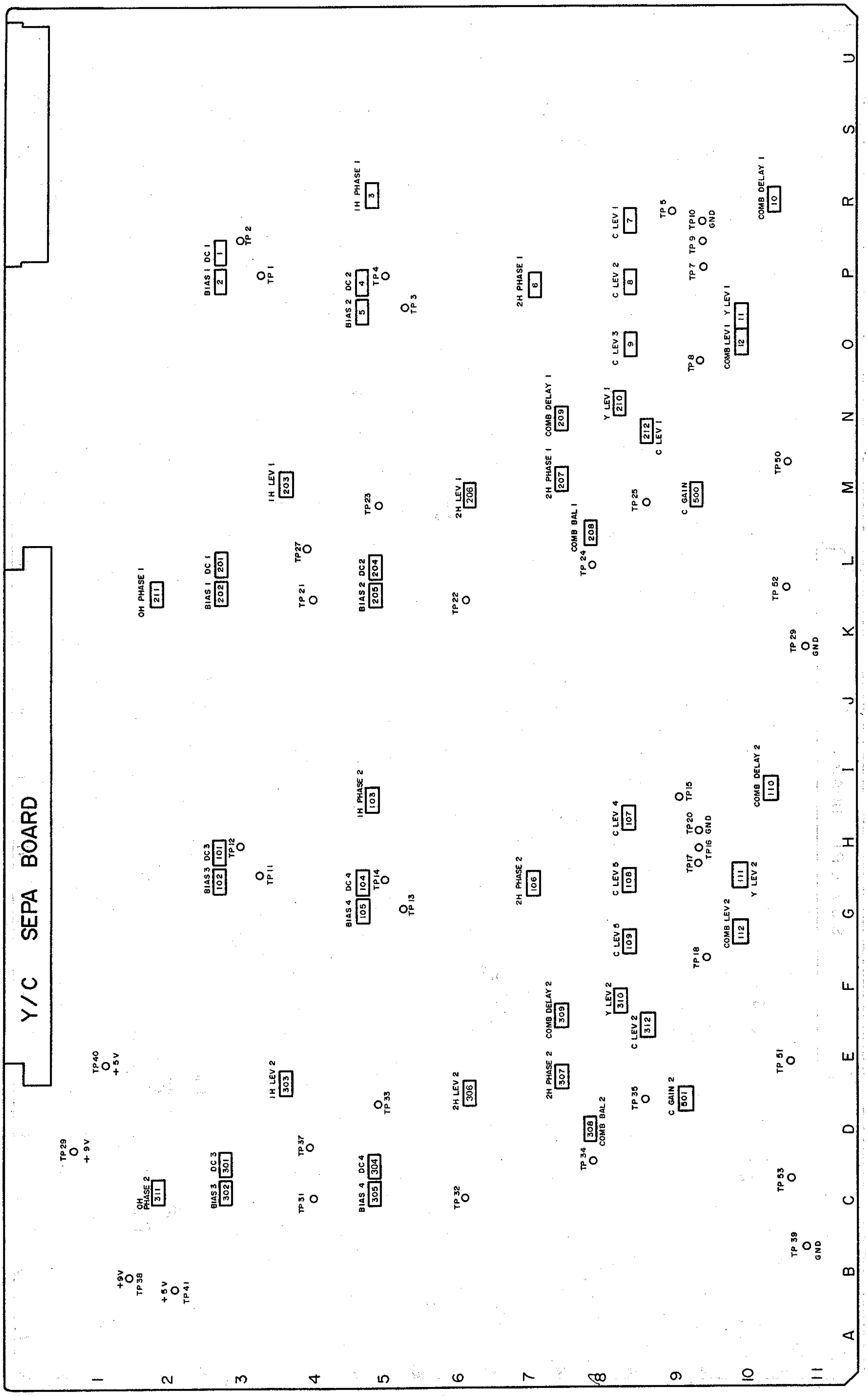
■ ADJUSTMENT PARTS LOCATION OF VIDEO BOARD


VIDEO BOARD
TP42 TP43
TP44 TP45 TP46 TP47
TP48
TP49
C. PVW GAIN 465
TP 9
TP 10
TP 8
TP 7
PST PHASE 107
C. BAL(E) IN 302
TP 20
PB LEV(E) IM 292
C. DSK PVW PED 158
C. PVW GAIN 2 160
C. DSK PVW GAIN 163
DIF 8 151
C. DSK PED 144
C. PGM GAIN 2 146
C. DSK GAIN 149
DIF 6 138
C. PVW PED 131
C. PVW GAIN 1 133
C. PST GAIN 2 136
DIF 7 124
C. PST PED 117
C. PGM GAIN 1 119
C. PST GAIN 122
DIF 5 111
P. WID(E) 283
P. POS(E) 281
924 LEV(E) 1L 295
5.36 LEV(E) 2L 372
P. PHASE(E) 3L 289
PST DOC SENSE 441
PGM DOC SENSE 405
TB 2 B-Y LEV. 453
TP 30
TP 29
TP 28
TP 6
TP 31 GND
TP 22 +5V
TP 16
SYNC GAIN 219
QUADRATURE 239
SC PHASE 237
TP 15
PED ADJ 210
TP 21
Y PVW GAIN 461
PVW GAIN 345
PVW Y GAIN 333
PGM GAIN 329
PGM Y GAIN 317
BURST LEV 262
BURST PHASE 259
R-Y GAIN 258
TP18
924 Y GAIN(E) 313
TP 4
TP 3
Y DSK PVW PED 85
DIF 4 79
Y. DSK PVW GAIN 90
Y. PVW GAIN 2 87
Y. DSK PED 71
DIF 2 65
Y DSK GAIN 77
Y PGM GAIN 2 74
Y PVW PED 58
DIF 3 51
Y PST GAIN 2 63
Y PVW GAIN 1 60
Y PST PED 44
DIF 1 38
Y PST GAIN 1 49
Y PGM GAIN 1 46
C. BAL 272
C. BAL 276
C. BAL(E) 8E 277
TP 17
TP 26 GND
TP 27 GND
TP 19
C. GAIN 231
Y. GAIN 197
TP 25 GND
TP 2
TP 5
+9V TP 23
TP 24 -9V
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S

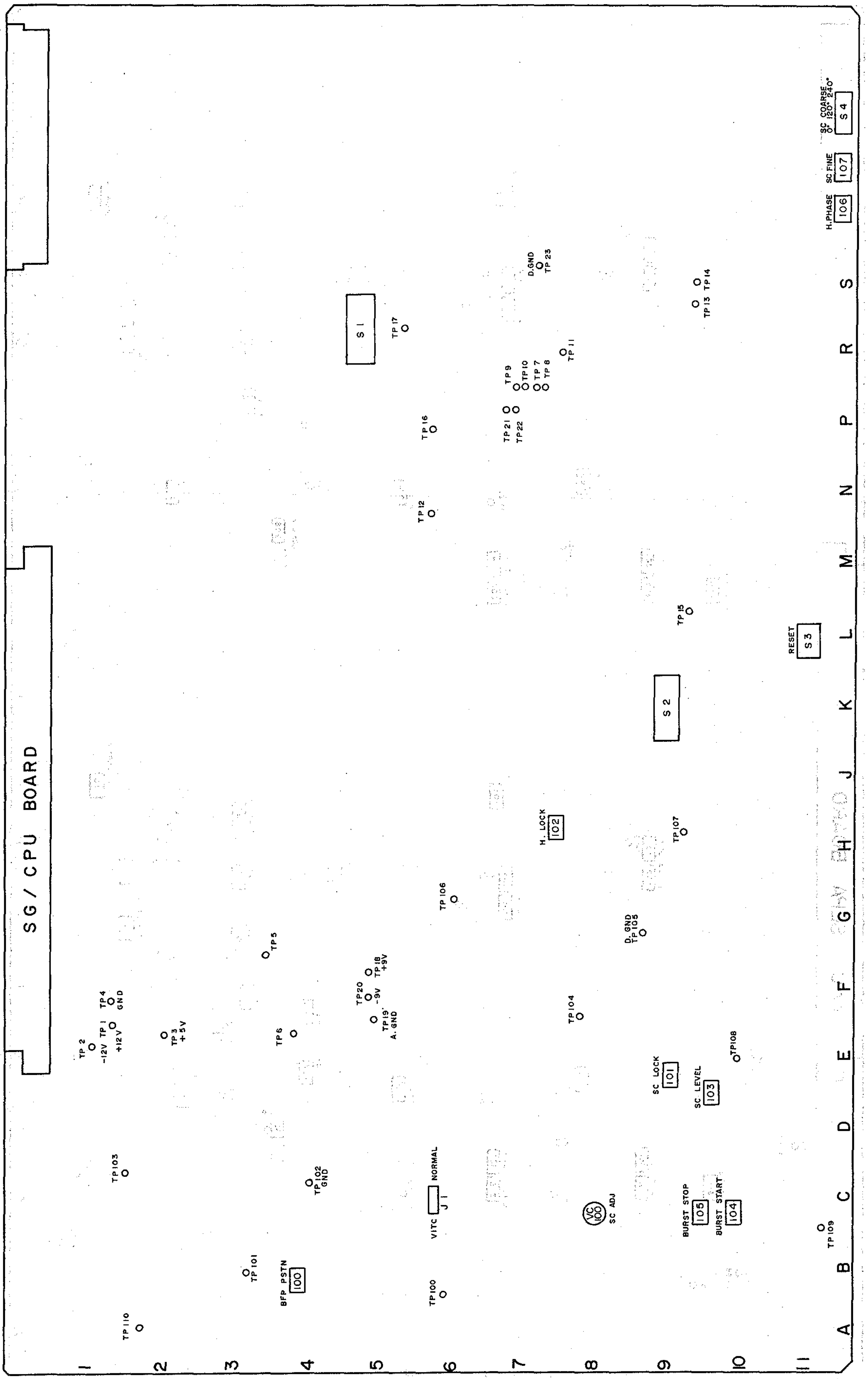
■ ADJUSTMENT PARTS LOCATION OF KEY BOARD


KEY BOARD
VIDEO BOARD
DSK.FILL Y.LEV 398
TP40
QUADRATURE 2 504
SC PHASE 2 502
DSK FILL C. LEV 478
TP44
GND TP51
BURST GAIN 487
SYNC GAIN 489
TP45
TP48
TP47
TP42
C.BAL 469
C.BAL 472
C.BAL 471
TP 31
PGM DSK DC 615
TP43
BURST LEV 457
BURST PHASE 440
TP 41
R-Y LEV 455
TP49
TP50
PVW DSK DC 617
TP46
TP 30
PED. ADJ 412
TP 28
CHR.FILL Y. LEV 252
TP 24
TP 34
PST CTL DC 374
TP 23
BURST LEV 573
R-Y LEV 265
SYNC LEV1 602
SYNC LEV 2 421
SET UP LEV 423
FILLY
J1
EXT
TP 32
KEY INV DC 352
PGM CTL DC 365
SC PHASE.1 287
TP 25
C.BAL 278
QUADRATURE 1 291
C.BAL 281
C.BAL 280
DL 2 BURST PHASE 576
TP 35
TP 33
TP 12
TP9
TP 17
GND TP 29
TP39
TP13
TP14
TP 11
TP 10
TP 38 +5V
CHR. FULL C LEV 296
TP27
TP 26
TP 15
MIX DC 213
P. P. KEY DC 208
TP 6
TP 2
WIPE KEY DC 203
BL. DC 182
V PARA LEV 86
V.PARA ADJ 84
V. TOP LEVEL 58
TP 5
TP22
TP16
TP19
TP7
V.TRI LEV 75
V.SAW LEV 77
TP 18
TP 37 -9V
H.TOP LEV 30
V.INV DC 97
TP 3
H. PARA LEV 38
SLIDE KEY DC 227
TP 20
CONE DC 118
CONE INV DC 121
TP8
H.PARA. ADJ 37
H.SAW LEV 26
H.TRI LEV 24
H. INV DC 49
TP 4
CONE BIAS 102
TP 1
GND TP21
+9V TP 36
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S

■ ADJUSTMENT PARTS LOCATION OF Y/C SEPA BOARD


Y/C SEPA BOARD
BIAS 1 DC 1 2 1
TP 1
TP 2
1H PHASE 1 3
BIAS 2 DC 2 5 4
TP 3
TP 4
2H PHASE 1 6
C LEV 1 7
C LEV 2 8
C LEV 3 9
TP 5
TP 7 TP 9 TP 10 GND
TP 8
COMB LEV 1 Y LEV 1 12 11
COMB DELAY 1 10
COMB DELAY 1 209
Y LEV 1 210
212 C LEV 1
2H PHASE 1 207
COMB BAL 1 208
TP 24
C GAIN 500
TP 25
TP 50
1H LEV 1 203
TP 23
2H LEV 1 206
OH PHASE 1 211
BIAS 1 DC 1 202 201
TP 27
TP 21
BIAS 2 DC 2 205 204
TP 22
TP 52
TP 29 GND
1H PHASE 2 103
COMB DELAY 2 110
C LEV 4 107
TP 15
TP 20 GND
TP 17 TP 16
BIAS 3 DC 3 102 101
TP 12
TP 11
BIAS 4 DC 4 105 104
TP 14
TP 13
2H PHASE 2 106
C LEV 5 108
111 Y LEV 2
C LEV 6 109
COMB LEV 2 112
TP 18
COMB DELAY 2 309
Y LEV 2 310
C LEV 2 312
TP 40 +5V
1H LEV 2 303
TP 33
2H LEV 2 306
2H PHASE 2 307
COMB BAL 2 308
TP 34
TP 35
C GAIN 2 501
TP 51
TP 29 +9V
TP 37
OH PHASE 2 311
BIAS 3 DC 3 302 301
TP 31
BIAS 4 DC 4 305 304
TP 32
TP 53
TP 39 GND
+9V TP 38
+5V TP 41
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
R
S
U

■ ADJUSTMENT PARTS LOCATION OF SG/CPU BOARD


SG / CPU BOARD
S 1
S 2
RESET
S 3
SC COARSE
0° 120° 240°
S 4
H.PHASE
106
SC FINE
107
D.GND
TP 23
TP 13
TP 14
TP 17
TP 11
TP 9
TP 10
TP 7
TP 8
TP 21
TP 22
TP 16
TP 12
TP 15
TP 107
H. LOCK
102
TP 106
D. GND
TP 105
TP 5
TP 18
+9V
TP 20
-9V
TP 19
A. GND
TP 104
TP 4
GND
TP 1
+12V
TP 2
-12V
TP 3
+5V
TP 6
TP 108
SC LOCK
101
SC LEVEL
103
TP 103
TP 102
GND
NORMAL
J 1
VITC
VC
100
SC ADJ
BURST STOP
105
BURST START
104
TP 109
TP 101
BFP PSTN
100
TP 100
TP 110
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S
1
2
3
4
5
6
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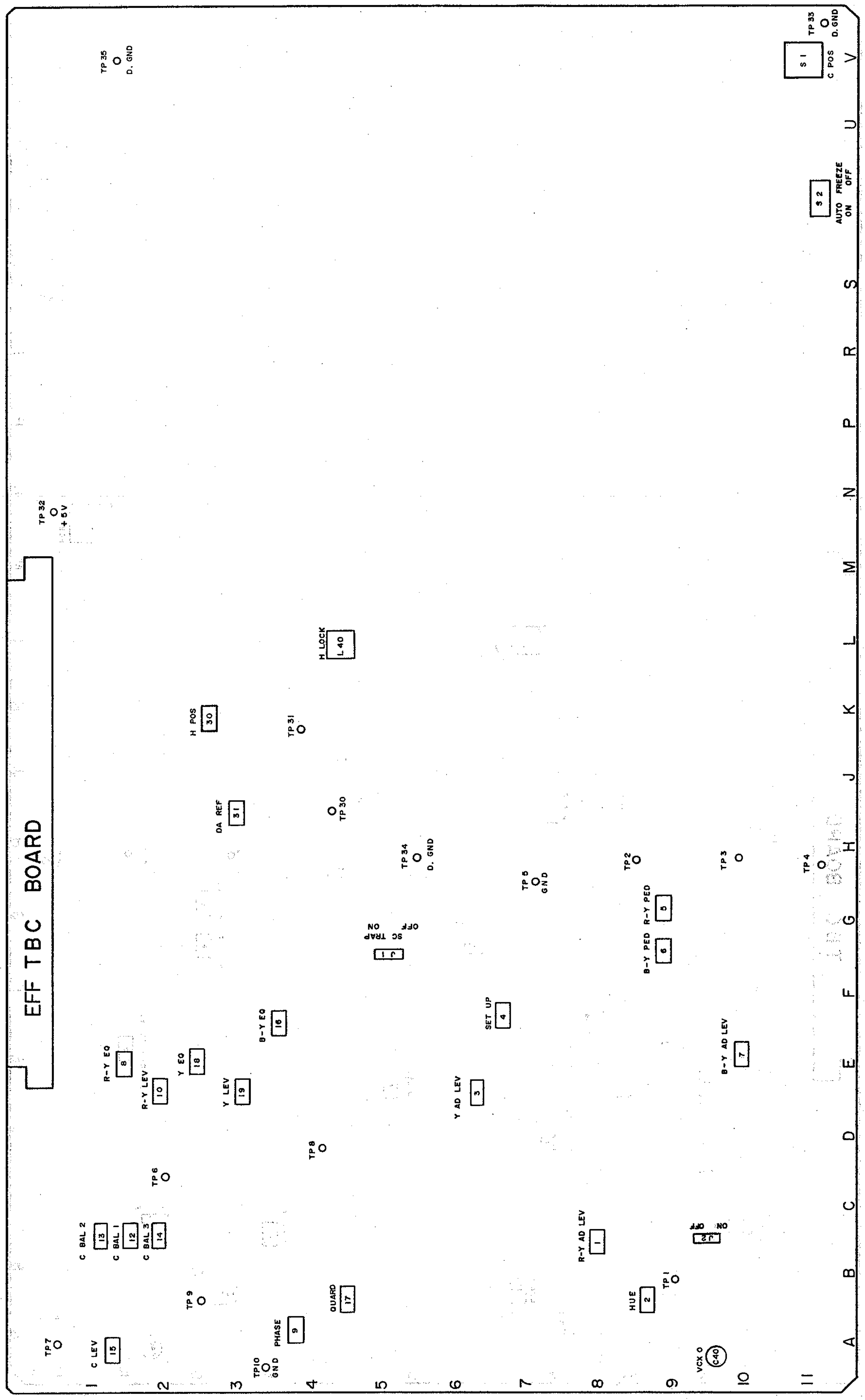
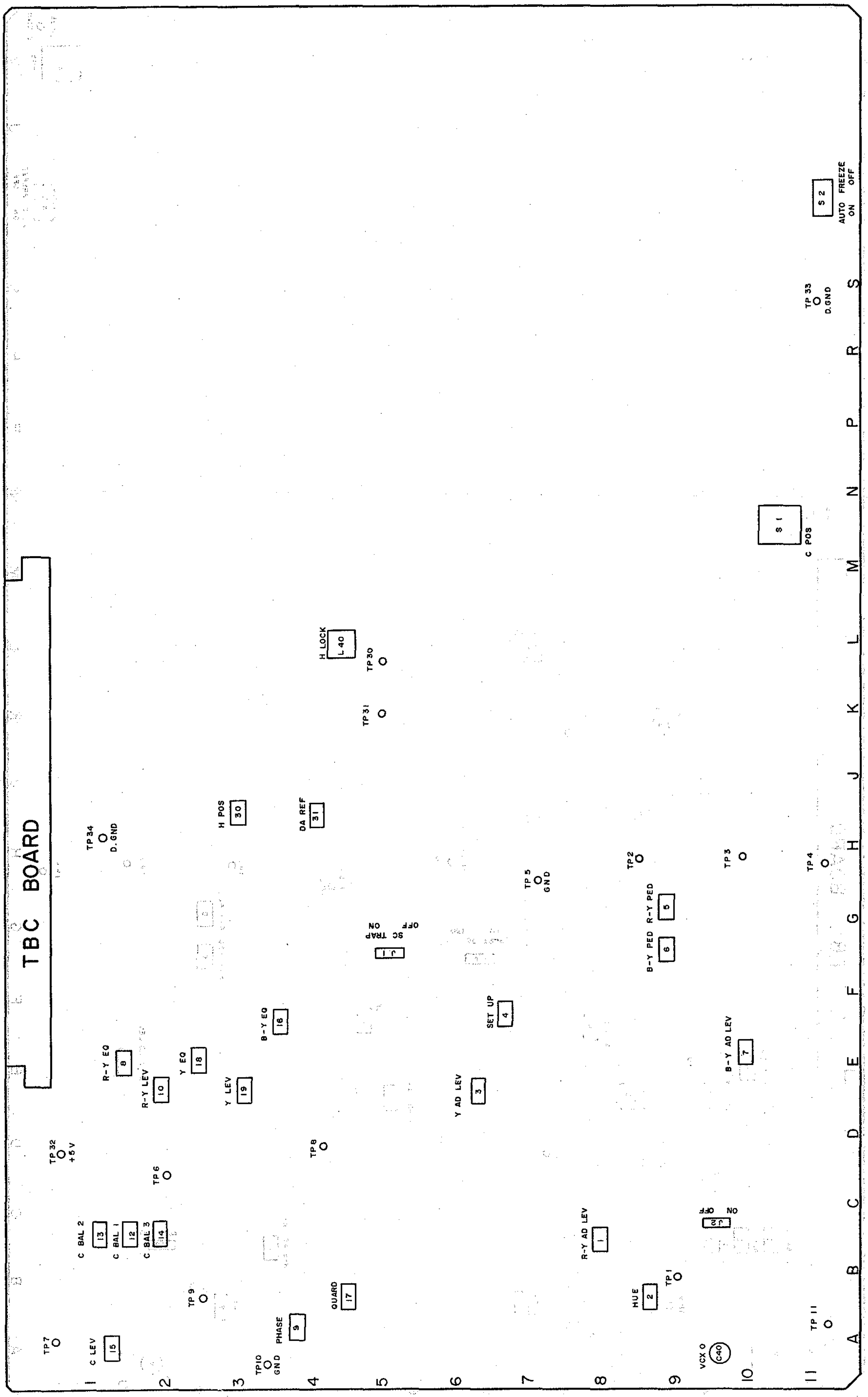
8
9
10
11

■ ADJUSTMENT PARTS LOCATION OF EFF TBC BOARD


EFF TBC BOARD
TP 35
D. GND
TP 33
D. GND
S 1
C POS
S 2
AUTO FREEZE
ON OFF
TP 32
+5V
H LOCK
L 40
H POS
30
TP 31
DA REF
31
TP 30
TP 34
D. GND
TP 5
GND
TP 2
TP 3
TP 4
R-Y PED
5
B-Y PED
6
SC TRAP
OFF ON
J 1
SET UP
4
B-Y EQ
16
B-Y AD LEV
7
R-Y EQ
8
Y EQ
18
R-Y LEV
10
Y LEV
19
Y AD LEV
3
TP 8
TP 6
C BAL 2
13
C BAL 1
12
C BAL 3
14
R-Y AD LEV
1
ON OFF
J 2
TP 1
HUE
2
TP 9
QUARD
17
PHASE
9
TP7
C LEV
15
TP10
GND
VCX O
C40
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S
U
V
1
2
3
4
5
6
7
8
9
10
11

■ ADJUSTMENT PARTS LOCATION OF TBC BOARD


TBC BOARD
S2
AUTO FREEZE
ON OFF
TP33
D.GND
S1
C POS
H LOCK
L40
TP30
TP31
H POS
30
DA REF
31
TP34
D.GND
TP5
GND
TP2
TP3
TP4
R-Y PED
5
B-Y PED
6
SC TRAP
OFF ON
J1
SET UP
4
B-Y EQ
16
Y EQ
18
R-Y EQ
8
R-Y LEV
10
Y LEV
19
Y AD LEV
3
B-Y AD LEV
7
TP32
+5V
TP6
TP8
C BAL 2
13
C BAL 1
12
C BAL 3
14
R-Y AD LEV
1
J2
OFF ON
TP1
HUE
2
TP9
GUARD
17
PHASE
9
TP7
C LEV
15
TP10
GND
VCXO
C40
TP11
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S
1
2
3
4
5
6
7
8
9
10
11

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.4 ADJUSTMENT OF POWER SUPPLY VOLTAGE

1	+5 V DC power supply	Digital voltmeter	• Set the SG/CPU board to the uppermost position. ◎ TP3 [SB/CPU - 2E] Ⓣ R62 [PS unit] ☆ +5 V	1) Regulate the voltage to be +5 V DC.

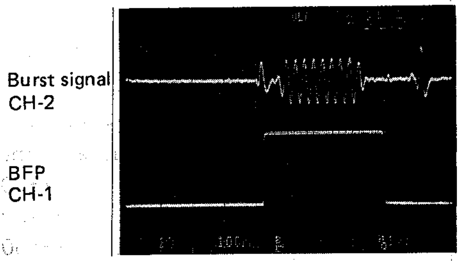
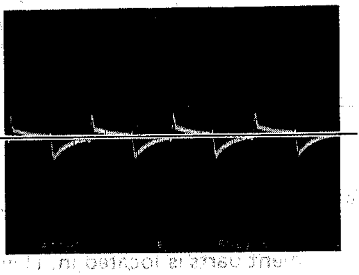
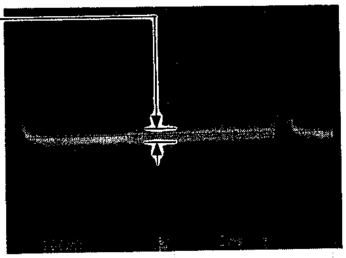
Note for the PS unit of following serial numbers.
***50025 and after (U version)
***50036 and after (EG version)
***50001 and after (EK version)
***50001 and after (EA version)

- Adjustment volume is:
  Ⓣ RV01
  ☆ + 5 V
- Other volumes RV2, RV3 and RV4 must not be disturbed.

3.5 ADJUSTMENT OF SSG FREQUENCY

Note: • For the following procedure, refer to "Adjustment Parts Location of SG/CPU board" on page 3-8.
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

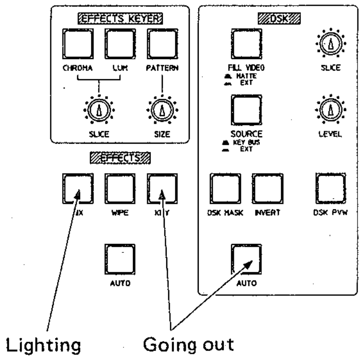
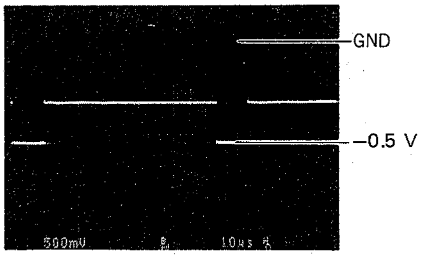
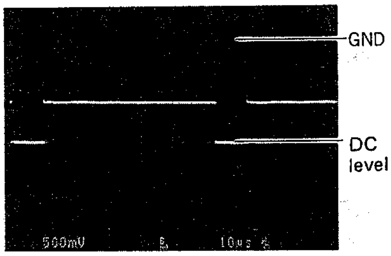
1	SC frequency	Frequency counter Oscilloscope	• Set the SG/CPU board to the uppermost position. ◎ TP108 [SG/CPU - 10E] Ⓣ SC ADJ (VC100) [SG/CPU - 8C] ☆ NTSC: 3.579545 MHz ± 5 Hz PAL: 4.433619 MHz ± 10 Hz ◎ TP103 [SG/CPU-2C] Ⓣ SC LEVEL (R103) [SG/CPU-10D] ☆ 0.6 Vp-p	• Warm up the set for more than 15 minutes after the power is turned on. • Required specifications of a frequency counter to be used are: (1) Capable for indicating value in 8 figures or more. (2) Stability of more than 0.1 ppm or 1×10^{-7} at 0°C to 40°C. 1) Adjust SC frequency to meet the specifications. 2) Adjust SC level to meet the specification.
2	BFP position	Oscilloscope (10 : 1, H-rate)		• Supply VBS or B.B. (black burst) signal from a TV test signal generator, etc. to one of the the GENLOCK INPUT terminals on the rear panel and terminate the other terminal with a 75-ohm resistor. • Or, when a color video camera is connected according to the instruction of the Section 3.2.2, disconnect the cable connected to the GENLOCK INPUT connector of the camera, and input eh camera's VBS output to the KM-D600's GENLOCK INPUT connector.

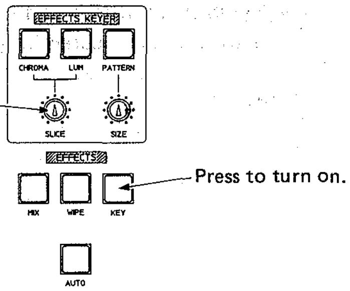
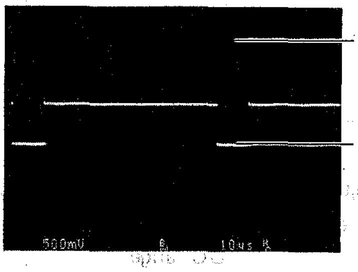
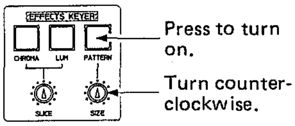
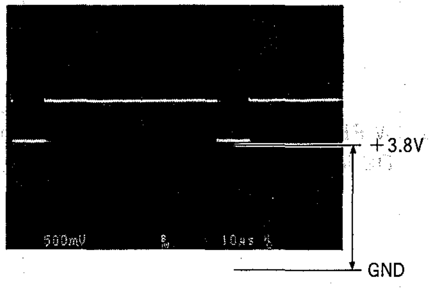
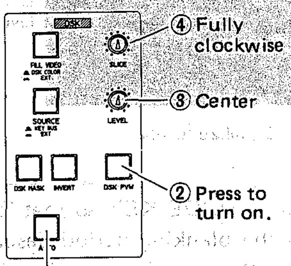
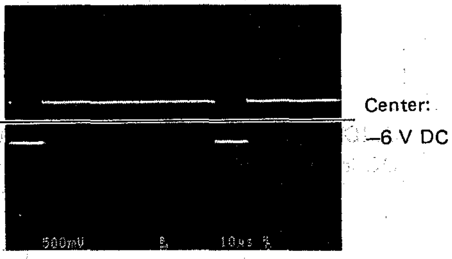
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ TP100 [SG/CPU - 6B] → CH-1 ◎ TP101 [SG/CPU - 3B] → CH-2 Ⓣ BFP PSTN (VR100) [SG/CPU - 4B] ☆ Burst signal is in the center of BFP.	1) Connect an oscilloscope as indicated below. CH-1 CH-2 2) Adjust VR100 to position burst signal (CH-2) in the center of BFP (CH-1). 
3	SC lock & H. lock	Oscilloscope (10 : 1, H-rate)	◎ TP104 [SG/CPU - 8F] Ⓣ SC LOCK (VR101) [SG/CPU - 9E] ☆ Adjust waveform to be horizontally symmetric. ◎ TP106 [SG/CPU - 6G] Ⓣ H. LOCK (VR102) [SG/CPU - 8H] ☆ Minimum jittering	1) Adjust VR101 to obtain such a waveform as shown below.  **Note** Following the above step 1), confirm the matter mentioned below. **Select the built-in color bars by the PROGRAM bus line and observe output signal coming from the PROGRAM COMPOSITE OUT connector with a vectorscope. At this time, no jittering must be observed at any point.** If jittering is observed on the screen, adjust VR101 to minimize it. 2) Minimize jittering by adjusting VR102.  • Disconnect the cable from the KM-D600's GENLOCK INPUT connector. When the cable is disconnected from a camera's GENLOCK INPUT terminal, connect it again as it was.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure

3.6 ADJUSTMENT OF REFERENCE DC VOLTAGES

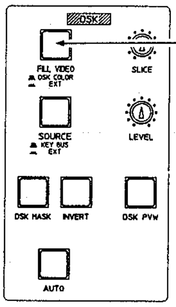
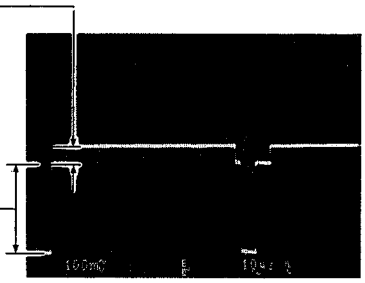
Note:
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

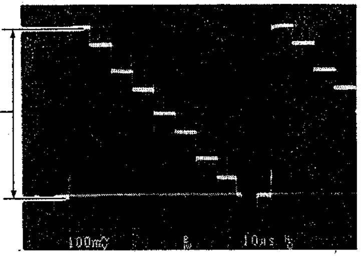
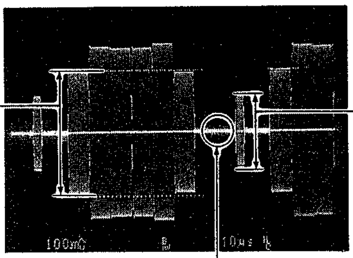
1	Preparation		• Set the KEY board to the uppermost position.	1) Set the FADER lever to the lowermost position. 2) Set the buttons as shown below.  EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE EFFECTS MIX WIPE KEY AUTO DSK FILL VIDEO ▲ MATTE ▲ EXT SLICE SOURCE ▲ KEY BUS ▲ EXT LEVEL DSK MASK INVERT DSK PVW AUTO Lighting Going out
2	PGM control DC level	Oscilloscope (10 : 1, H-rate, DC range)	◎ TP33 [KEY - 8J] ⏀ PGM CTL DC (R365) [KEY - 11K] ☆ DC level of blanking: –0.5 V	3) Set the DC level in the blanking period. 
3	WIPE/KEY DC level		◎ TP32 [KEY - 8K] ⏀ WIPE KEY DC (R203) [KEY - 8F]	4) Equalize two kinds of DC levels in the blanking period when the MIX button of the EFFECTS section and the WIPE button is pressed.  Equalize levels.
4	SLIDE KEY DC level		◎ Same as above step 3 ⏀ SLIDE KEY DC (R227) [KEY - 6B]	5) Set DC level of SLIDE KEY so that it does not vary in the blanking period despite of alternate on-off operation of the SLIDE button.

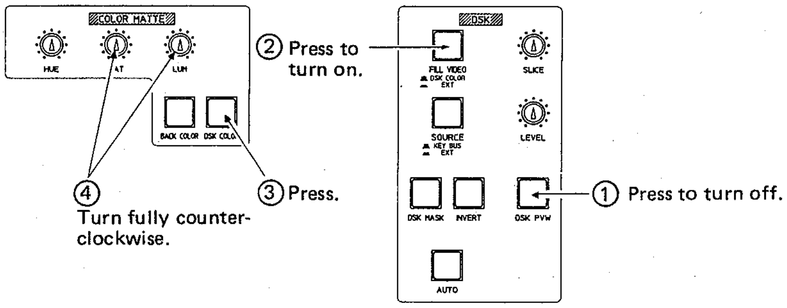
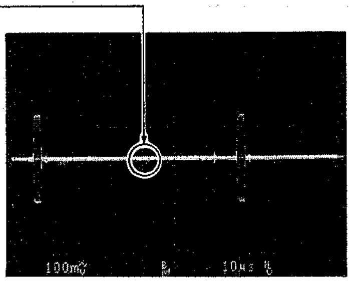
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure
5	Preset pattern control DC level	Oscilloscope (10 : 1, H-rate DC range)	◎ TP34 [KEY - 9L] ⏀ PST CTL DC (R374) [KEY - 10L] ☆ DC level of blanking: −1 V	6) Set the buttons and controls as shown below.  EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE EFFECTS MIX WIPE KEY AUTO Turn fully clockwise. Press to turn on. 7) Set the DC level in the blanking period. 
6	Preset pattern KEY DC level		 EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE Press to turn on. Turn counter-clockwise. ◎ TP18 [KEY - 7D] ⏀ P.P. KEY DC (R208) [KEY - 8G] ☆ DC level of blanking: +3.8 V	8) Set the button and control knob as shown on the left. 9) Set the DC level in the blanking period. 
7	DSK DC level  DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO ④ Fully clockwise ③ Center ② Press to turn on. ① Press and wait for lighting.		◎ TP49 [KEY -8N] ⏀ PGM DSK DC (R615) [KEY -8P] ☆ Center level of waveform: −0.6 V DC ◎ TP50 [KEY -9N] ⏀ PVW DSK DC (R617) [KEY -10N] ☆ Center level of waveform: −0.6 V DC	10) Set the buttons and controls on the control panel in order of ① through ④ . 11) Adjust the DC level so that a half of the peak level of the waveform meets the specified value. 

3.7 ADJUSTMENT OF DSK ENCODER (1)

Note:
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation	R,G,B color bar	• Set the KEY board to the uppermost position. ◎ R/G/B OUTPUT terminal [Camera or Remote control unit] ☆ R,G,B signal levels: 0.525 Vp-p (respective) (with 75-ohm terminator)	1) Check output levels of R, G, B signals of the camera or the remote control unit (color bar level). Hook up R, G, B signals after completion of the item 2 (Setup level adjustment) and item 3 (Sync level adjustment).
			 DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO	2) Press the FILL VIDEO button to turn off.
			◎ SC PHASE (R502) [KEY - 4S] ⓣ BURST PHASE (R440) [KEY - 3N] ☆ Mechanical center position	3) Set R440 and R502 to the mechanical center position respectively.
2	Setup level **NTSC version only**	Oscilloscope (10 : 1, H-rate)	◎ TP41 [KEY - 4N] ⓣ SETUP LEVEL (R423) [KEY - 6K] ☆ Setup level: 54 mVp-p	1) Adjust setup level to meet the specified value. 
3	Sync level		◎ TP41 [KEY - 4N] ⓣ SYNC LEV (R421) [KEY - 6K] ☆ Sync level NTSC : 0.286 Vp-p PAL : 0.3 Vp-p	1) Adjust sync level to meet the specified value.

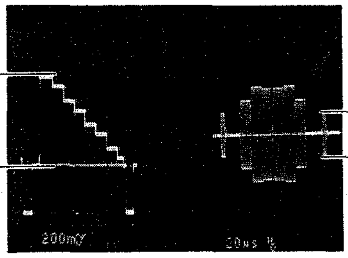
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure
4	Y signal level	R,G,B color bars	◎ TP41 [KEY - 4N] ⏀ DSK FILL Y LEV (R398) [KEY - 2R] ☆ Y signal level NTSC : 0.55 Vp-p PAL : 0.7 Vp-p	1) Supply R, G, B signals whose output levels have been confirmed in the item 1 "Preparation to the DSK R/G/B INPUT connector on the KM-D600's rear panel. 2) Adjust Y level to meet the specified value. 
5	Chroma level	Oscilloscope (10 : 1, H-rate) R,G,B color bars	◎ TP44 [KEY - 5S] ⏀ DSK FILL C LEV (R478) [KEY - 5S] ☆ Chroma level (corresponding to blue and yellow of color bars signal): 0.43 Vp-p	1) Adjust chroma level to meet the specified value. 
			⏀ C. BAL (R469) [KEY - 4P] ⏀ C. BAL (R471) [KEY - 5P] ⏀ C. BAL (R472) (PAL only) [KEY - 4J] ☆ Minimum carrier leak	2) Minimize carrier leak.
			⏀ BURST LEV (R457) [KEY - 3N] ☆ Burst level: NTSC : 0.286 Vp-p PAL : 0.3 Vp-p	3) Adjust burst level to meet the specified value.

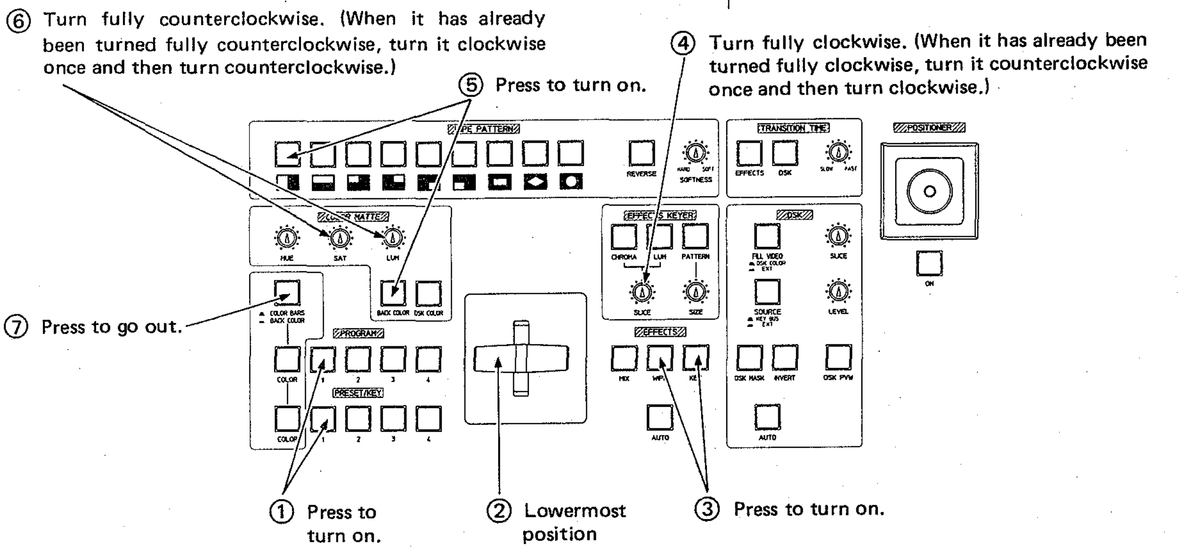
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure
6	DSK color			1) Set buttons and controls on the front panel in order of ① through ④ as shown below.  COLOR MATTE HUE SAT LUM BACK COLOR DSK COLOR DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO ② Press to turn on. ③ Press. ④ Turn fully counter-clockwise. ① Press to turn off.
			◎ TP44 [KEY - 5S] ⏀ PED ADJ (R412) [KEY - 2M] ☆ Minimum carrier leak	2) Minimize carrier leak. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.8 ADJUSTMENT OF VIDEO SIGNAL LEVEL

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)
- For proceeding to the following items, it is the first condition that the adjustment of the ENCODER has been completed.

1	Preparation	NTSC: Y/C358 color bars PAL: Y/C443 color bars	◎ Y/C358 (Y/C443) OUTPUT terminal [Camera or Remote control unit] ☆ Y signal: NTSC : 0.55 Vp-p PAL : 0.7 Vp-p (with 75-ohm terminator) ☆ C signal: NTSC : 0.286 Vp-p PAL : 0.3 Vp-p (Burst level, with 75-ohm terminator) • Set the VIDEO board to the uppermost position.	1) Set the KM-D600 into the 1600 mode referring to the section 2.5. 2) Confirm the output level of Y/C signal (color bars) of a camera or a remote control unit.  Y signal C signal 3) Supply Y/C signal from a camera or remote control unit to the Y/C INPUT-1 connector on the KM-D600's rear panel. 4) Set the buttons and controls of the control panel in the following order (① to ⑦) as shown below.


WIPE PATTERN
REVERSE
SOFTNESS
TRANSITION TIME
EFFECTS
DSK
POSITIONER
COLOR MATTE
HUE
SAT
LUM
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
DSK
SLICE
SOURCE
LEVEL
BACK COLOR
DSK COLOR
PROGRAM
PRESET/KEY
COLOR
EFFECTS
MIX
WIPE
KEY
AUTO
DSK MASK
INVERT
DSK PVW

⑥ Turn fully counterclockwise. (When it has already been turned fully counterclockwise, turn it clockwise once and then turn counterclockwise.)

⑤ Press to turn on.

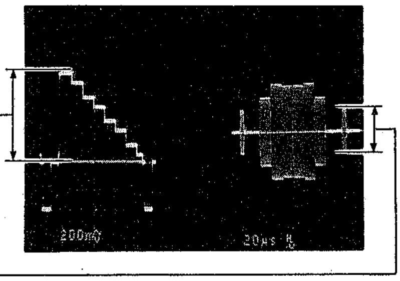
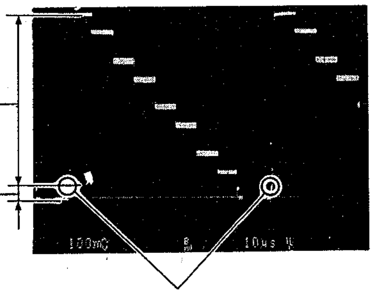
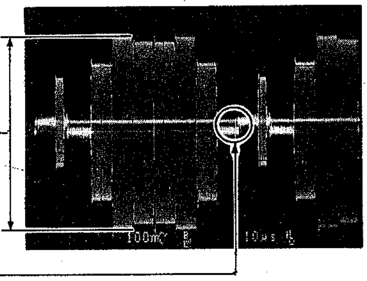
④ Turn fully clockwise. (When it has already been turned fully clockwise, turn it counterclockwise once and then turn clockwise.)

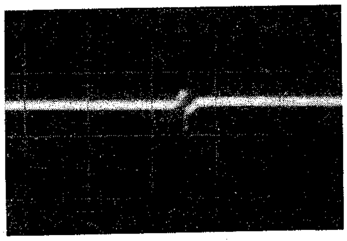
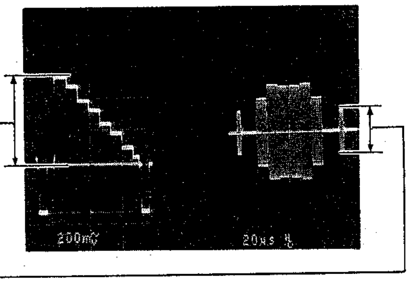
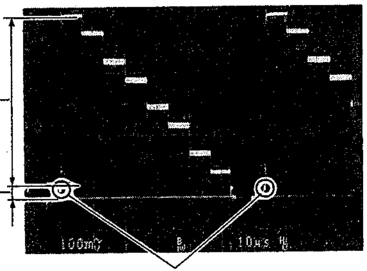
⑦ Press to go out.

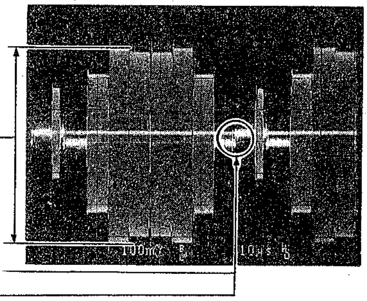
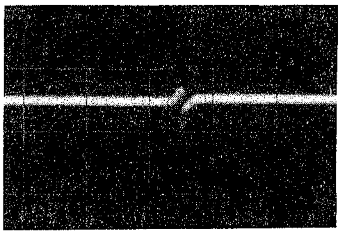
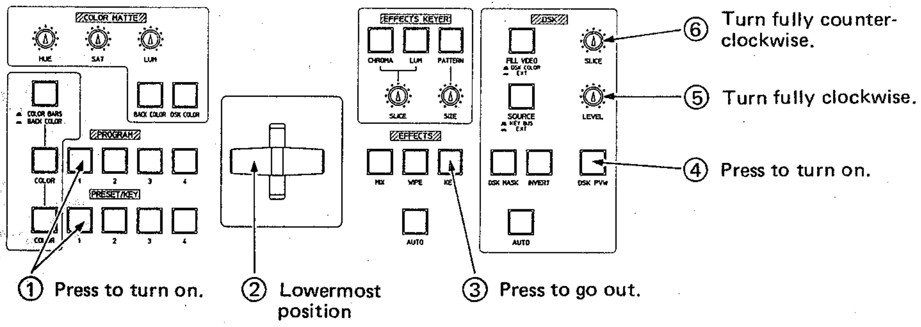
① Press to turn on.

② Lowermost position

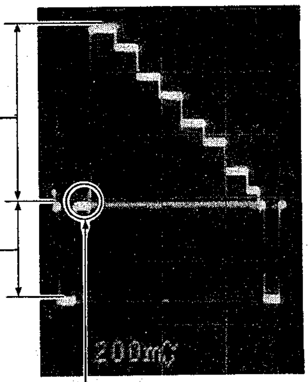
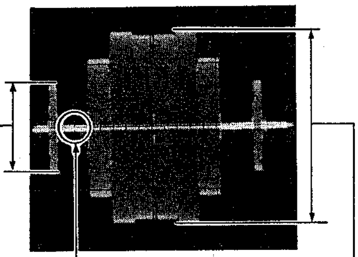
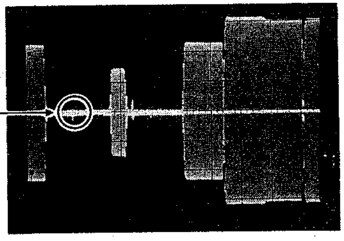
③ Press to turn on.

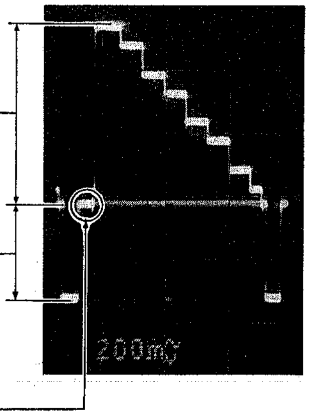
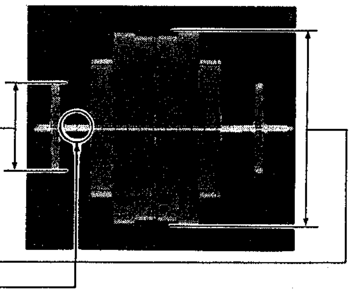
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⌽) Adjustment level (☆)	Adjustment procedure
2	Signal levels of PGM EFFECTS amp.	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ TP2 [VIDEO - 4B] ⌽ Y PGM GAIN 1 (R46) [VIDEO - 6E] ☆ Y signal: NTSC : 0.55 Vp-p PAL : 0.7 Vp-p ◎ TP7 [VIDEO - 4S] ⌽ C PGM GAIN 1 (R119) [VIDEO - 6N] ☆ C signal (Burst level) NTSC : 0.286 Vp-p PAL : 0.3 Vp-p	1) Adjust to obtain specified signal levels.  Y signal C signal
			◎ TP2 [VIDEO - 4R] ⌽ Y PST GAIN 1 (R49) [VIDEO - 6D] ☆ Y signal levels are equalized*. ⌽ Y PST PED (R44) [VIDEO - 5D] ☆ Blanking period*: Flat	2) Adjust respective VRs so that signal level as the FADER lever is set to the uppermost position and signal level with the lever set to the lowermost position coincide with each other.  *Take note of stepping between blanking period and video signal period.
			◎ TP7 [VIDEO - 4S] ⌽ C PST GAIN 1 (R122) [VIDEO - 6N] ☆ Chroma levels are equalized. ⌽ C PST PED (R117) [VIDEO - 6N] ☆ Blanking period : Flat	

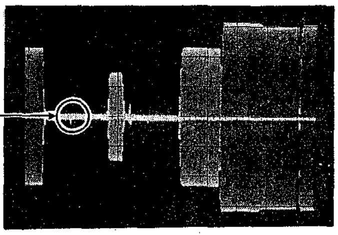
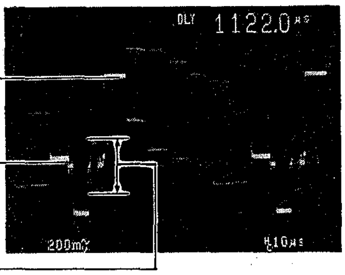
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (ⓣ) Adjustment level (☆)	Adjustment procedure
		Oscilloscope (10 : 1, H-rate 20 mV/div.)	◎ TP2 [VIDEO - 4B] ⓣ DIF 1 (R38) [VIDEO - 6D] ☆ Minimize defect in Y signal waveform. ◎ TP7 [VIDEO - 4S] ⓣ DIF 5 (R111) [VIDEO - 6N] ☆ Minimize defect in C signal waveform.	3) Press the "COLOR" button of the PROGRAM and PRESET/KEY bus lines. 4) Move the lever up and down and observe the waveform carefully. 5) When any moving defect is observed in the waveform as the lever is moved, adjust R38/R111 to minimize the defect.  External view 6) Press the button "1" of the PROGRAM and PRESET/KEY bus lines again.
3	Signal levels of PVW EFFECTS amp.	Oscilloscope (10 : 1, H-rate 200 mV/div.) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ TP3 [VIDEO - 2D] ⓣ Y PVW GAIN 1 (R60) [VIDEO - 5E] ☆ Y signal: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p ◎ TP8 [VIDEO - 4S] ⓣ C PVW GAIN 1 (R133) [VIDEO - 5N] ☆ C signal: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p (Burst level) ◎ TP3 [VIDEO - 2D] ⓣ Y PST GAIN 2 (R63) [VIDEO - 5D] ☆ Y signal levels are equalized*. ⓣ Y PVW PED (R58) [VIDEO - 4D] ☆ Blanking period*: Flat	1) Set the FADER lever to the uppermost position. 2) Adjust signal levels to meet the specifications.  Y signal C signal 3) Adjust respective VRs to equalize signal levels as the FADER lever is set to the lowermost position and to the uppermost position.  *Take note of stepping between blanking period and video signal period.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure
		Oscilloscope (10 : 1, H-rate 20 mV/div.)	◎ TP8 [VIDEO - 4S] ⏀ C PST GAIN 2 (R136) [VIDEO - 5N] ☆ Chroma levels are equalized. ⏀ C PVW PED (R131) [VIDEO - 5N] ☆ Blanking period: Flat ◎ TP3 [VIDEO - 2D] ⏀ DIF 3 (R51) [VIDEO - 5D] ☆ Minize defect in Y signal waveform. ◎ TP8 [VIDEO - 4S] ⏀ DIF 7 (R124) [VIDEO - 5N] ☆ Minimize defect in C signal waveform.	 4) Press the "COLOR" button of the PROGRAM bus and PRESET/KEY bus lines. 5) Press the "PATTERN" button of the EFFECTS KEYER section. 6) Move the SIZE control of the EFFECTS KEYER section to right and left, and observe the waveform carefully. 7) When any moving defect in the waveform as the control is moved, minimize it by use of R51/R124.  8) Press the button "1" of the PROGRAM bus and PRESET/KEY bus lines again.
4	Signal levels of PGM DSK amp.	Oscilloscope (10 : 1, H-rate 200 mV/div.) NTSC: Y/C358 color bars PAL : Y/C443 color bars		1) Connect a 7-pin BNC conversion device to the PGM Y/C OUTPUT 1 connector on the rear panel of KM-D600. 2) Set buttons and controls of the control panel in the order of ① to ⑥ as shown below.  ⑥ Turn fully counter-clockwise. ⑤ Turn fully clockwise. ④ Press to turn on. ① Press to turn on. ② Lowermost position ③ Press to go out.

COLOR MATTE
HUE
SAT
LUM
COLOR BARS
BACK COLOR
BACK COLOR
DSK COLOR
PROGRAM
COLOR
1
2
3
4
PRESET/KEY
COLOR
1
2
3
4
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
EFFECTS
MIX
WIPE
KEY
AUTO
DSK
FILL VIDEO
DSK COLOR
EXT
SLICE
SOURCE
KEY BUS
EXT
LEVEL
DSK MASK
INVERT
DSK PVW
AUTO

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ PGM Y/C OUTPUT 1 Y signal output (with 75-ohm terminator) [7-pin BNC conversion device] Ⓣ Y DSK GAIN (R77) [VIDEO - 4D] ☆ Sync leveel: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ Y PGM GAIN 2 (R74) [VIDEO - 4E] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p Ⓣ Y DSK PED (R71) [VIDEO - 4D] ☆ Blanking period: Flat	3) Adjust sync. level as specified.  Y signal 4) Adjust Y signal level and blanking period alternately.
		Oscilloscope (10 : 1, H-rate 200 mV/div.) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ C DSK GAIN (R149) [VIDEO - 4N] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	5) Adjust burst signal level as specified. 
		Oscilloscope (10 : 1, H-rate) Y/C358 color bars	◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] ◎ TP7 [VIDEO - 4S] ☆ C PGM GAIN 2 (R146) [VIDEO - 4N] Chroma level: Even Ⓣ C DSK PED (R144) [VIDEO - 4N] ☆ Blanking period: Flat	6) Observe TP7's waveform by the other channel of the oscilloscope. 7) Adjust R146 to equalize chroma levels on the both channels. 8) Flatten the waveform in the blanking period. 9) Minimize defect in the stepping between blanking period and video signal period.
			◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ DIF 6 (R138) [VIDEO - 4N] ☆ Minimize defect in the back porch of burst signal.	

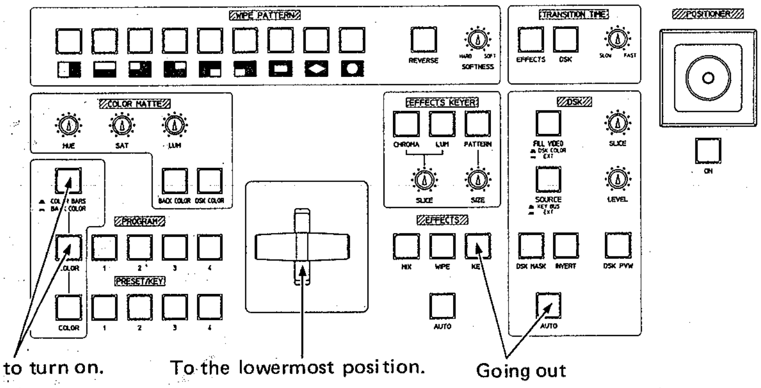
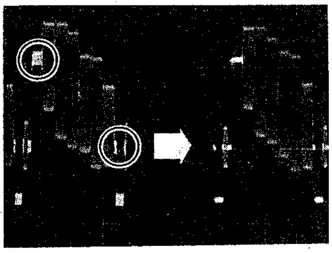
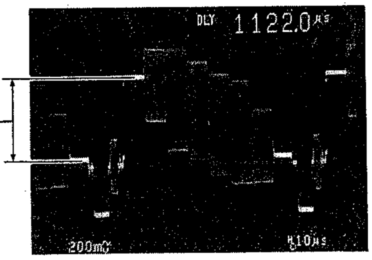
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
5	Signal levels of PVW DSK amp.	Oscilloscope (10 : 1, H-rate) NTSC: YC358 color bars PAL : YC443 color bars	Ⓣ Y PVW GAIN (R461) [VIDEO - 2G] Ⓣ C PVW GAIN (R465) [VIDEO - 1S] ☆ Mechanical center	1) Connect a 7-pin BNC conversion device to the PVW Y/C OUTPUT connector on the rear panel. 2) Set R461 and R465 to the mechanical center position respectively. 3) Adjust SYNC level as specified.
			◎ PVW Y/C OUTPUT Y signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ Y DSK PVW GAIN (R90) [VIDEO - 3D] ☆ SYNC level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	
			Ⓣ Y PVW GAIN 2 (R87) [VIDEO - 3E] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p Ⓣ Y DSK PVW PED (R85) [VIDEO - 3D] ☆ Blanking period : Flat	4) Alternately adjust Y signal level and blanking period to meet the specifications.
			◎ PVW Y/C OUTPUT C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ C DSK PVW GAIN (R163) [VIDEO - 3N] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	5) Adjust burst signal level as specified. 
			◎ PVM Y/C OUTPUT C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] ◎ TP7 [VIDEO - 4S] Ⓣ C PVW GAIN 2 (R160) [VIDEO - 3N] ☆ Chroma levels: Even Ⓣ C DSK PVW PED (R158) [VIDEO - 3N] ☆ Blanking period: Flat	6) Observe TP7's waveform on the other channel of the oscilloscope. 7) Adjust R160 to equalize chroma levels on the both channels. 8) Flatten the waveform in the blanking period.

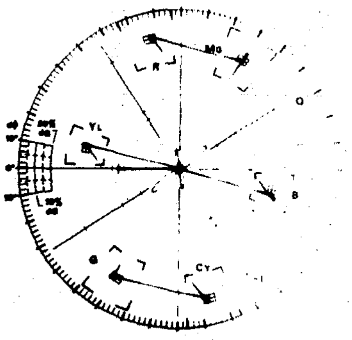
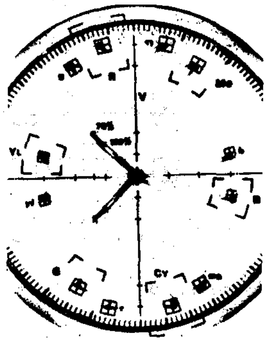
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ PVW Y/C OUTPUT C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ DIF 8 (R151) [VIDEO -3N] ☆ Minimize defect in back porch of burst signal.	9) Minimize defect in the stepping between blanking period and video signal period. 
6	Composite signal output level	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) Ⓣ PGM GAIN (R329) [VIDEO - 5F] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ PGM Y GAIN (R317) [VIDEO - 5F] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p ◎ PVW COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ PVW GAIN (R345) [VIDEO - 4F] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ PVW Y GAIN (R333) [VIDEO - 4F] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p	1) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 2) Adjust burst level.  3) Adjust Y signal level. 4) Connect the oscilloscope to the PVW COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 5) Adjust burst level. 6) Adjust Y signal level.

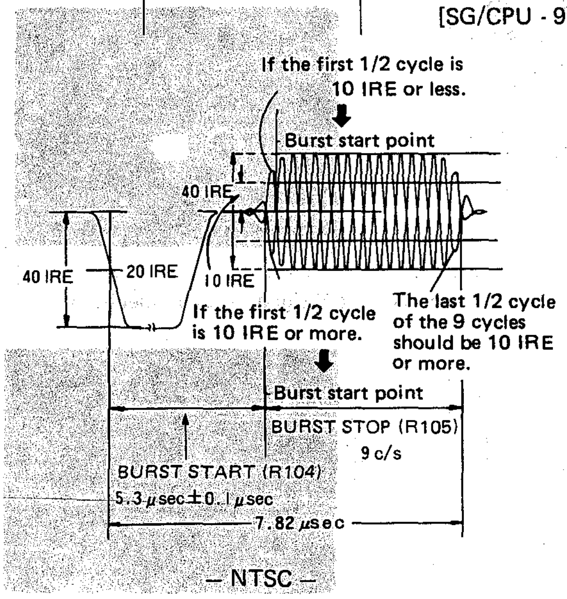
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.9 ADJUSTMENT OF BUILT-IN COLOR BARS SIGNAL

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

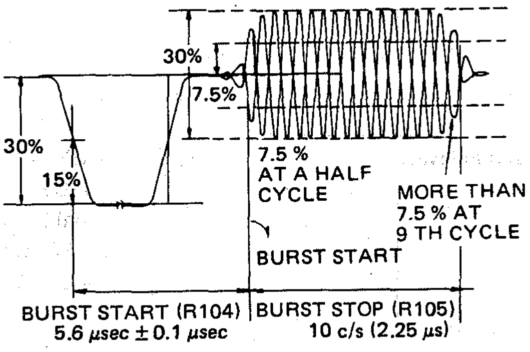
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 3) Set the buttons and controls on the control panel as shown below.  Press to turn on. To the lowermost position. Going out
2	Carrier balance	Oscilloscope (10 : 1, H-rate)	Ⓣ SYNC GAIN (R219) [VIDEO - 5H] Ⓣ BURST LEV (R262) [VIDEO - 8G] Ⓣ BURST PHASE (R259) [VIDEO -8F] ☆ Mechanical center position - Ⓣ C. BAL (R272) [VIDEO - 8D] Ⓣ C. BAL (R276) [VIDEO - 8D] Ⓣ C. BAL (R277) (PAL only) [VIDEO - 8E] ☆ Minimum carrier leak	1) Set R219, R259 and R262 to the respective mechanical center positions. 2) Alternately turn VRs to minimize carrier leak in the white and black portions. 
3	Y signal level		Ⓣ Y GAIN (R197) [VIDEO - 10C] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p	1) Adjust Y signal level as specified. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	Color phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ SC PHASE (R237) [VIDEO - 8H] Ⓣ QUADRATURE (R239) [VIDEO - 8H] Ⓣ R-Y GAIN (R258) [VIDEO - 8F] Ⓣ C. GAIN (R231) [VIDEO - 7C] Ⓣ BURST PHASE (R259) [VIDEO - 8F, Adjust for PAL only]  – NTSC –	1) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the GAIN control of the vectorscope to "CAL" or "75%" (preset position). 3) Adjust VRs to position every spot (R, G, B, Mg, Cy, Yl) in the respective point (⊞) on the vectorscope screen.  – PAL –
5	Adjusting the burst position and width	Waveform monitor or Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (75-ohm terminated) [Rear panel] Ⓣ BURST START (R104) [SG/CPU - 10C] Ⓣ BURST STOP (R105) [SG/CPU - 9C]	1) Match them as follows.



If the first 1/2 cycle is 10 IRE or less.
Burst start point
40 IRE
40 IRE
20 IRE
10 IRE
If the first 1/2 cycle is 10 IRE or more.
The last 1/2 cycle of the 9 cycles should be 10 IRE or more.
Burst start point
BURST STOP (R105)
9 c/s
BURST START (R104)
5.3 μsec ± 0.1 μsec
7.82 μsec

– NTSC –



30%
7.5%
30%
15%
7.5 % AT A HALF CYCLE
MORE THAN 7.5 % AT 9 TH CYCLE
BURST START
BURST START (R104)
5.6 μsec ± 0.1 μsec
BURST STOP (R105)
10 c/s (2.25 μs)

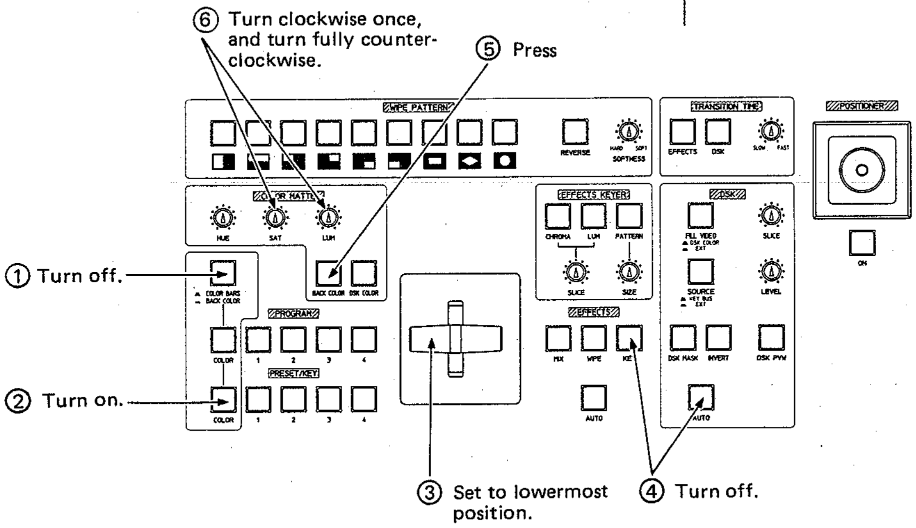
– PAL –

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.10 ADJUSTMENT OF BACK COLOR SIGNALS

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector. 3) Set buttons and controls on the control panel as shown below. (Set in the order of ① to ⑥).


WIPE PATTERN
REVERSE
HARD SOFT
SOFTNESS
TRANSITION TIME
EFFECTS
DSK
SLOW FAST
POSITIONER
ON
COLOR MATTE
HUE
SAT
LUM
BACK COLOR
DSK COLOR
COLOR BARS
BACK COLOR
PROGRAM
COLOR
1 2 3 4
PRESET/KEY
COLOR
1 2 3 4
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
EFFECTS
MIX
WIPE
KEY
AUTO
DSK
FILL VIDEO
DSK COLOR
EXT
SLICE
SOURCE
KEY BUS
EXT
LEVEL
DSK MASK
INVERT
DSK PVW
AUTO

⑥ Turn clockwise once, and turn fully counter-clockwise.

⑤ Press

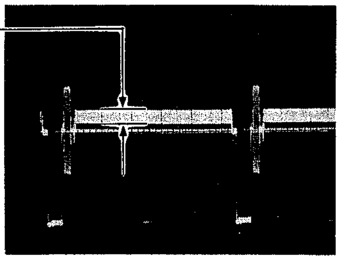
① Turn off.

② Turn on.

③ Set to lowermost position.

④ Turn off.

2	Pedestal level	Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ PED ADJ (R210) [VIDEO - 4H] ☆ Minimum carrier leak	1) Adjust to minimize carrier leak.



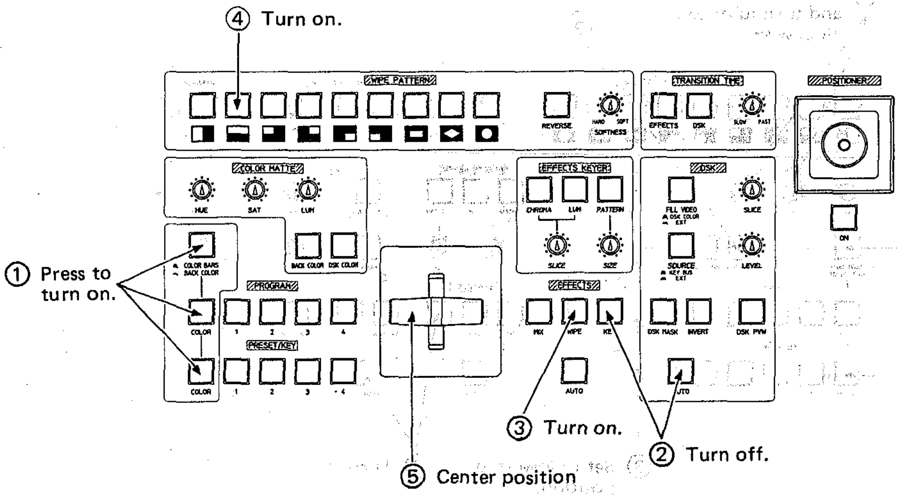
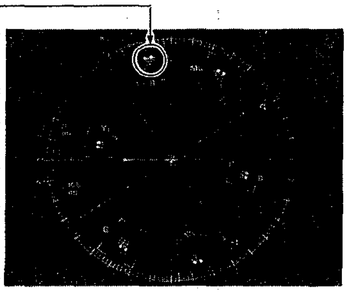
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.11 ADJUSTMENT OF CHROMA PHASE

Note: • Adjust in the 1600 mode (see Section 2.5).

Note: • For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.

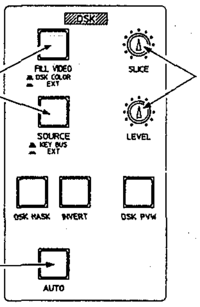
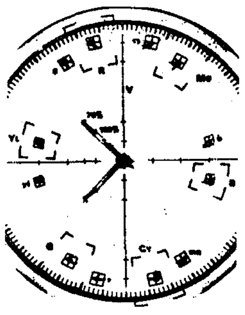
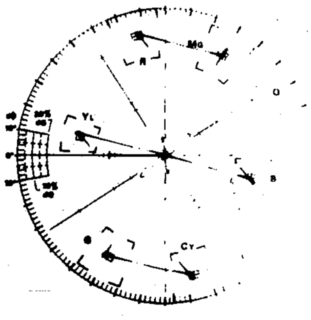
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector on the rear panel. 3) Set buttons and controls on the control panel as shown below. (Proceed in the order of ① to ⑤.)  ④ Turn on. ① Press to turn on. ③ Turn on. ② Turn off. ⑤ Center position WIPE PATTERN REVERSE HARD SOFT SOFTNESS TRANSITION TIME EFFECTS DSK SLOW FAST POSITIONER ON COLOR MATTE HUE SAT LUM BACK COLOR DSK COLOR COLOR BARS BACK COLOR PROGRAM COLOR 1 2 3 4 PRESET/KEY COLOR 1 2 3 4 EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE EFFECTS MIX WIPE KE AUTO DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO
2	Chroma phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ PST PHASE (R107) [VIDEO - 6P] ☆ Adjust to position every dot at the same point.	1) Adjust R107 so that every point becomes a small spot in the respective ⊞ on the vectorscope screen. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure

3.12 ADJUSTMENT OF DSK ENCODER (2)

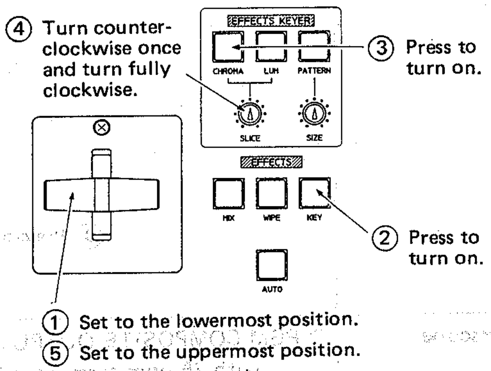
Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

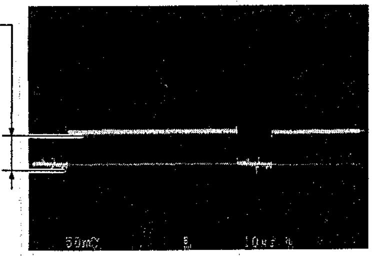
1	Preparation	R,G,B color bars	• Set the KEY board to the uppermost position. R/G/B OUTPUT terminal [Camera or Remote control unit] R,G,B signal level: 0.525 Vp-p (with 75-ohm terminator)	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Check respective output levels of R, G, B signals of the camera or remote control unit (color bars signal). 3) Supply the R,G,B signals to the DSK R/G/B INPUT connector of the KM-D600's rear panel. 4) Set buttons and controls of the control panel in the order of ① through ③ as shown below.  DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO ① Press to go out. ② Turn counter-clockwise once, then turn clockwise fully. ③ Press to turn on.
2	Color phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] ⏀ QUADRATURE 2 (R504) [KEY - 3R] ⏀ R-Y LEV (R455) [KEY - 4N] ⏀ BURST PHASE (R440) [KEY - 3N; Adjust for PAL only]  – PAL –	1) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the vectorscope's gain control to "CAL" or "75% (preset)" position. 3) Adjust VRs to position each spot (R, G, B, Mg, Cy, Yl) in the respective point (⊞) on the vectorscope screen.  – NTSC –

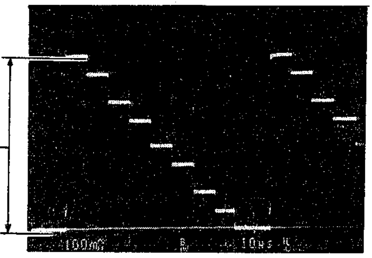
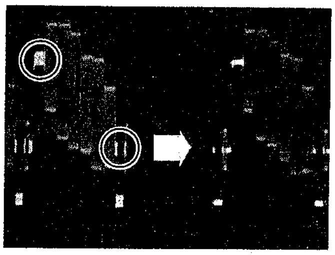
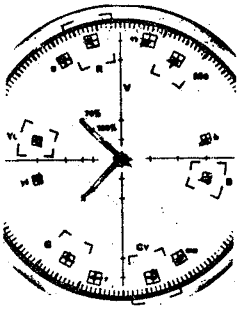
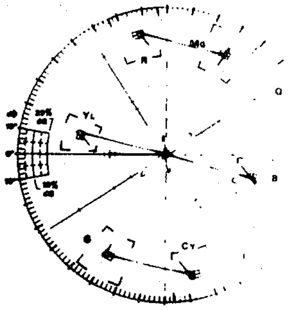
3.13 ADJUSTMENT OF CHROMAKEY ENCODER

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation	R,G,B color bars	• Set the KEY board to the uppermost position. Ⓣ R/G/B OUTPUT terminal [Camera or Remote control unit] ☆ R,G,B signal level: 0.525 Vp-p (with 75-ohm terminator)	1) Set KM-D600 into the 1600 mode (refer to the section 2.5). 2) Check respective output levels of R, G, B signals of the camera or remote control unit (color bar level). 3) Supply the R, G, B signals to the CHROMA KEY R/G/B INPUT connector of the KM-1600's rear panel. 4) Set buttons and controls of the control panel in the order of ① through ⑤ as shown below.


④ Turn counter-clockwise once and turn fully clockwise.
EFFECTS KEYER
CHROMA
LUM
PATTERN
③ Press to turn on.
SLICE
SIZE
EFFECTS
MIX
WIPE
KEY
② Press to turn on.
AUTO
① Set to the lowermost position.
⑤ Set to the uppermost position.

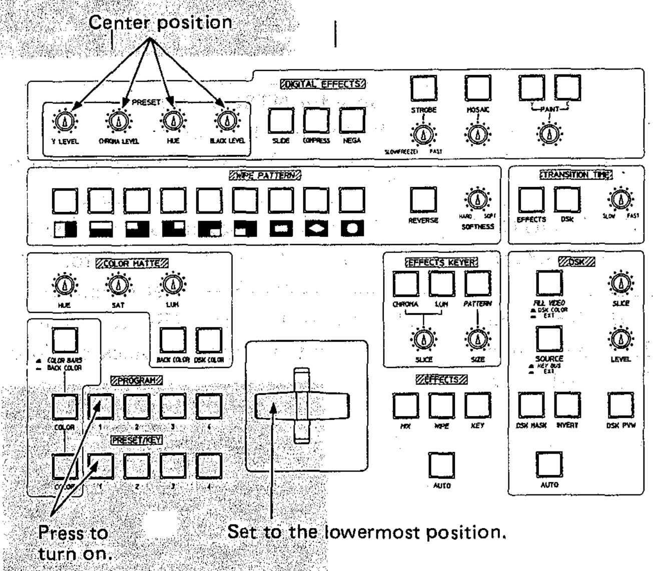
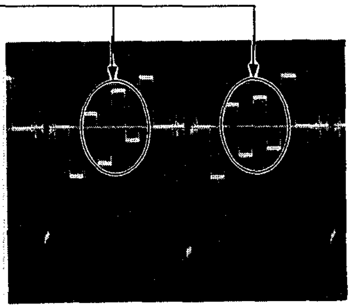
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ BURST LEV (R573) [KEY - 2K] Ⓣ BURST PHASE (R576) [KEY - 5J] ☆ Mechanical center position	4) Set R576 and R573 to their mechanical center positions respectively.
2	Setup level **NTSC version only**	Oscilloscope (10 : 1, H-rate)	◎ TP41 [KEY - 4N] Ⓣ SYNC LEV 1 (R602) [KEY - 6L] ☆ Setup level: 54 mVp-p	1) Stop inputting the R, G, B signals. 2) Adjust setup level to meet the specifications. 

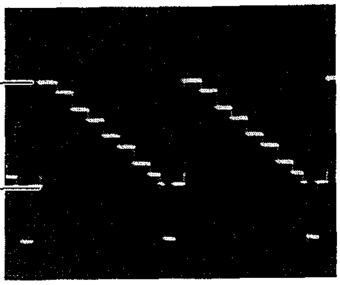
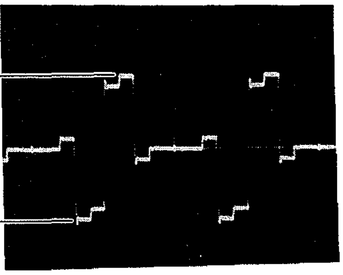
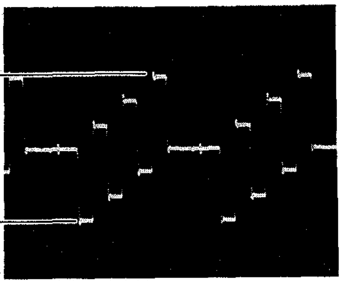
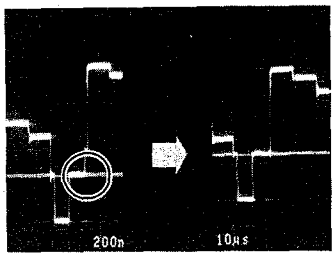
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	Y signal level		◎ TP41 [KEY - 4N] Ⓣ CHR FILL Y LEV (R252) [KEY - 2M] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p	1) Again, supply R, G, B signals. 2) Adjust Y signal level to meet the specified value.  **Note for NTSC version** Make sure to repeat the items 2 (Setup level) and 3 (Y signal level) several times.
4	Carrier balance	Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ C. BAL (R279) [KEY - 3J] Ⓣ C. BAL (R280) [KEY - 4H] Ⓣ C. BAL (R281) (PAL only) [KEY - 4J] ☆ Minimum carrier leak	1) Connect an oscilloscope to the PGM COMPOSITE OUTPUT connector of the rear panel (with 75-ohm terminator). 2) Alternately turn VRs to minimize carrier leaks in the white and black sections. 
5	Color phase	Vectorscope	◎ PRM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ SC PHASE (R289) [KEY - 2K] Ⓣ QUADRATURE (R291) [KEY - 2J] Ⓣ R-Y GAIN (R265) [KEY - 4L] Ⓣ CHR FILL C. LEV (R296) [KEY - 3G] Ⓣ BURST PHASE (R576) [KEY - 5J; Adjust for PAL only]  – PAL –	1) Connect an vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the vectorscope's GAIN control to "CAL" or "75% (preset)" position. 3) Adjust VRs to position each spot (R, G, B, Mg, Cy, Yl) in the respective point (⊞) on the vectorscope screen.  – NTSC –

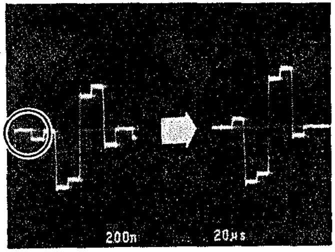
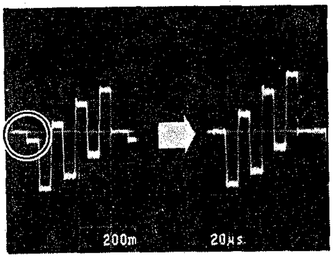
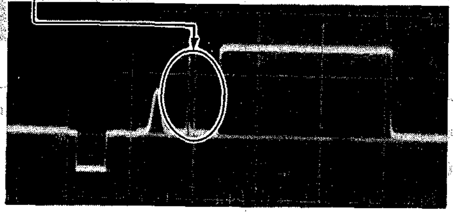
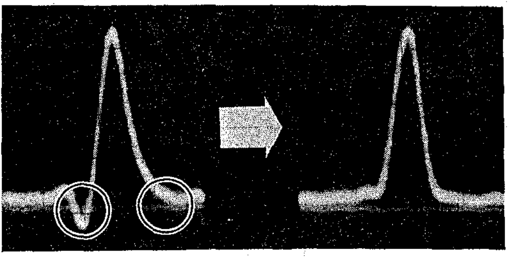
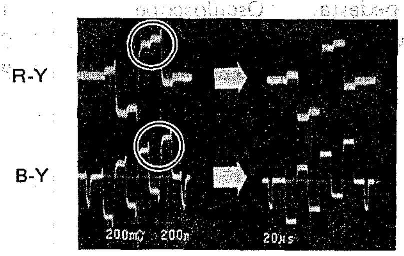
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure

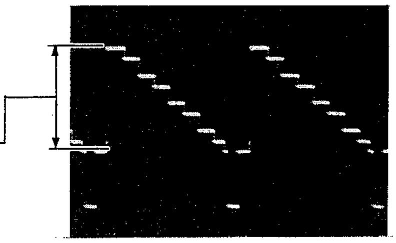
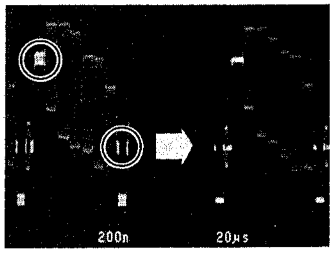
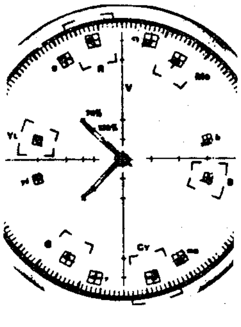
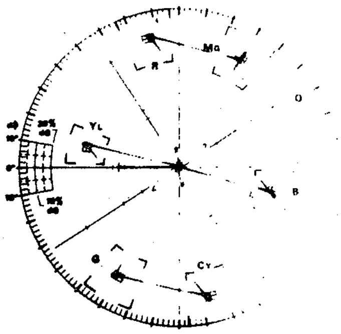
3.14 ADJUSTMENT OF EFF TBC BOARD

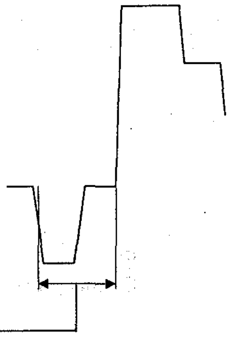
Note:
- For the following procedure, refer to "Adjustment Parts Location of EFF TBC board" on page 3-9.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
1	Preparation	NTSC: Y/C358 color bars PAL : Y/C443 color bars Center position  PRESET Y LEVEL CHROMA LEVEL HUE BLACK LEVEL DIGITAL EFFECTS SLIDE COMPRESS NEGA STROBE MOSAIC PAINT SLOW/FREEZE FAST WIPE PATTERN REVERSE HARD SOFT SOFTNESS TRANSITION TIME EFFECTS DSK SLOW FAST COLOR MATTE HUE SAT LUM COLOR BARS BACK COLOR BACK COLOR DSK COLOR PROGRAM COLOR 1 2 3 4 PRESET/KEY EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE EFFECTS MIX WIPE KEY AUTO FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO Press to turn on. Set to the lowermost position.	• Set the EFF TBC board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Turn off the AUTO FREEZE switch of the EFF TBC board. (This switch is located at the position of the address 11T.) 3) Input Y/C signal of the camera or remote control unit to the Y/C INPUT-1 connector of the KM-D600's rear panel. 4) Set buttons and controls as shown in the left figure. **Note:** Set all the WIPE, MIX, KEY, DSK and DIGITAL EFFECTs to OFF.
2	VCXO	Frequency counter	① J2 [EFF TBC - 10C] ☆ ON ◎ TP11 [EFF TBC - 11A] ① VCXO (C40) [EFF TBC - 10A] ☆ NTSC: 3.579545 MHz ± 20 Hz PAL : 4.433619 MHz ± 20 Hz ① J2 [EFF TBC - 10C] ☆ OFF	1) Set the switch connector of the board J2 to ON. 2) Adjust the frequency as specified. 3) Set J2 to OFF.
3	Color phase	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ TP4 [EFF TBC - 11G] ① HUE (VR2) [EFF TBC - 8A] ☆ Waveform is the same in the two points.	1) Adjust waveform in an optional line to be the same as that of 1H before. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	Input level	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	• Y level ◎ TP2 [EFF TBC - 8G] Ⓣ Y AD LEV (VR3) [EFF TBC - 6D] ☆ NTSC: 1.3 Vp-p (75% white level) PAL : 1.73 Vp-p (100% white level) • R-Y level ◎ TP3 [EFF TBC - 10G] Ⓣ R-Y AD LEV (VR1) [EFF TBC - 8B] ☆ 1.3 Vp-p • B-Y level ◎ TP4 [EFF TBC - 11G] Ⓣ B-Y AD LEV (VR7) [EFF TBC - 10E] ☆ 1.3 Vp-p	1) Adjust the respective signal level as specified.   
5	Reference voltage of D/A converter	Digital voltmeter	◎ TP30 [EFF TBC - 4H] Ⓣ DA REF (VR31) [EFF TBC - 2H] ☆ 4 V DC	1) Adjust the reference voltage as specified.
6	H. lock		◎ TP31 [EFF TBC - 3J] Ⓣ H LOCK (L40) [EFF TBC - 3L] ☆ 4.5 V DC	1) Adjust the voltage as specified.
7	Y pedestal level	Oscilloscope (10 : 1, H-rate) NTSC: Y/C 358 color bars PAL: Y/C 443 color bars	◎ TP9 [EFF TBC - 2A] Ⓣ SETUP (VR4) [EFF TBC - 6F] ☆ Pedestal level: flat	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
8	Chroma center level	Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [EFF TBC - 2C] Ⓣ R-Y PED (VR5) [EFF TBC - 9G] ☆ Flat in center of waveform • B-Y ◎ TP8 [EFF TBC - 4D] Ⓣ B-Y PED (VR6) [EFF TBC - 9F] ☆ Flat in center of waveform	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period.  
9	K factor	Oscilloscope (10 : 1, H-rate) 2T pulse (by test signal generator)	◎ PVW Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y EQ (VR18) [EFF TBC - 2E] ☆ Minimum distortion Magnify this part on the oscilloscope.  2T pulse	1) Supply 2T pulse to the COMPOSITE INPUT -2 connector of the rear panel. (Y/C ↔ COMP selector switch is set to Y/C as it is.) 2) Press the respective "2" button of the PROGRAM BUS and PRESET/KEY BUS. 3) Minimize distortion. 
		Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [EFF TBC - 2C] Ⓣ R-Y EQ (VR8) [EFF TBC - 1E] ☆ Minimum ringing • B-Y ◎ TP8 [EFF TBC - 4D] Ⓣ B-Y EQ (VR16) [EFF TBC - 3E] ☆ Minimum ringing	4) Press the respective "1" button of the PROGRAM BUS and PRESET/KEY BUS. 5) Minimize ringing. 

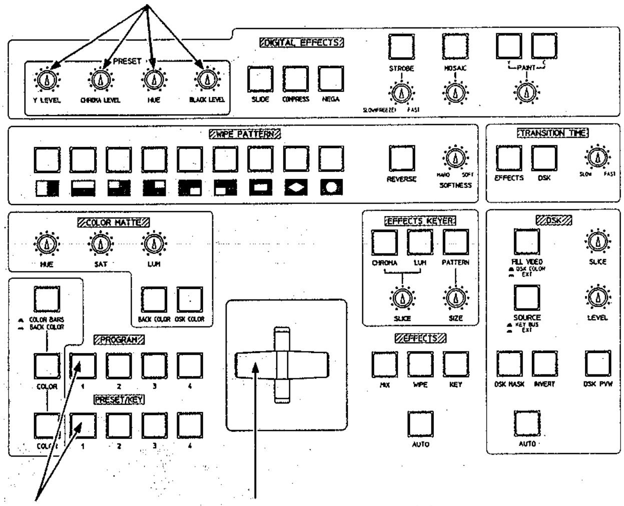
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
10	Y output level	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PVW Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BND conversion device] Ⓣ Y LEV (VR19) [EFF TBC - 3D] ☆ NTSC: 0.55 Vp-p PAL : 0.7 Vp-p	1) Adjust the signal level as specified. 
11	Carrier balance	Vectorscope Y/C color bars	◎ PVW COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C BAL (VR12)[EFF TBC - 1B] Ⓣ C BAL (VR13)[EFF TBC - 1B] Ⓣ C BAL (VR14) (PAL only) [EFF TBC - 2B] ☆ Minimum carrier leak	1) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector of the rear panel (with 75-ohm termination). 2) Turn VR12 and VR13 alternately to minimize carrier leaks both in the white and black portions. 
12	C output level	Vectorscope Y/C color bars	◎ PVW COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ PHASE (VR9)[EFF TBC - 3A] Ⓣ QUAD (VR17)[EFF TBC - 4A] Ⓣ R-Y LEV (VR10) [EFF TBC - 2D] Ⓣ C LEV (VR15)[EFF TBC - 1A]  — PAL —	1) Connect a vectorscope to the PVW COMPOSITE OUTPUT connector. 2) Set the vectorscope's GAIN control to CAL or 75% (preset) position. 3) Alternately adjust the VRs so that every spot (R, G, B, Mg, Cy, Yl) is positioned in the square point (⊞).  — NTSC —

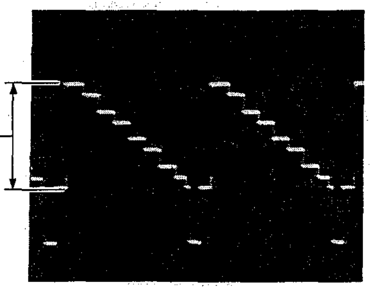
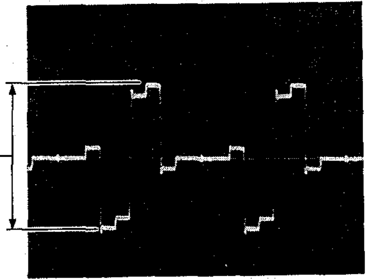
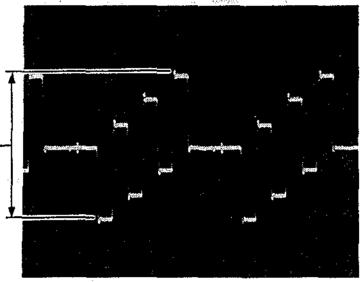
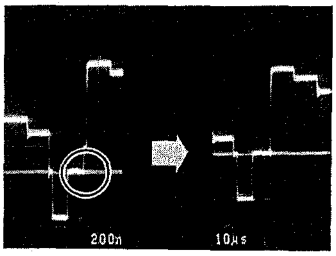
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
13	H. phase	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PVW COMPOSITE OUTPUT (with 75 Ω termination) ⦶ H POS (VR30) [EFF TBC - 2K] ☆ NTSC : 9.4 μsec PAL : 10 μsec	1) Connect the oscilloscope's probes to test points. 2) Adjust the period between falling portion of SYNC and rising portion of color bars. 

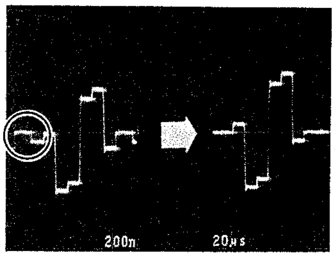
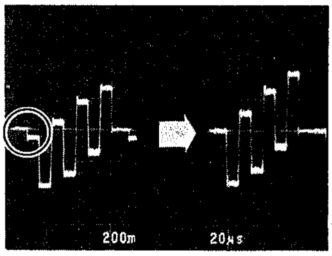
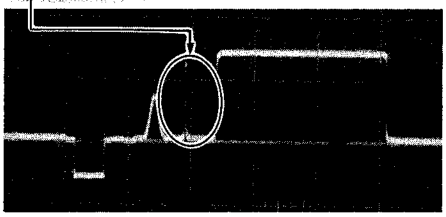
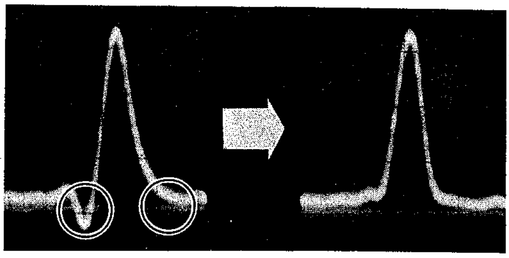
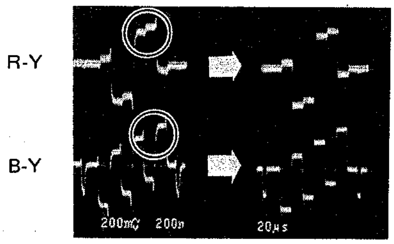
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

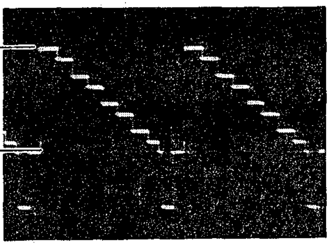
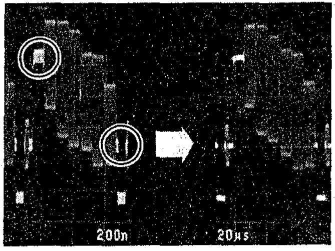
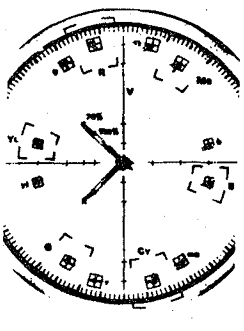
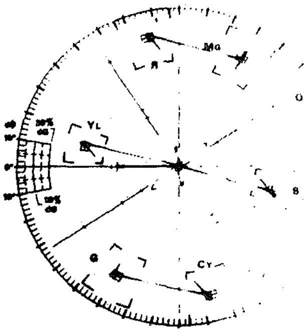
3.15 ADJUSTMENT OF TBC BOARD

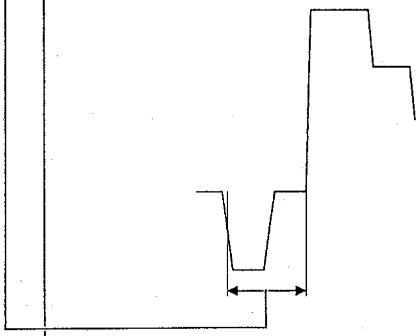
Note:
- For the following procedure, refer to "Adjustment Parts Location of TBC board" on page 3-10.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

1	Preparation Center position  DIGITAL EFFECTS PRESET Y LEVEL CHROMA LEVEL HUE BLACK LEVEL SLIDE COMPRESS NEGA STROBE MOSAIC PAINT SLOW/FREEZE FAST WIPE PATTERN REVERSE HARD SOFT SOFTNESS TRANSITION TIME EFFECTS DSK SLOW FAST COLOR MATTE HUE SAT LUM COLOR BARS BACK COLOR BACK COLOR DSK COLOR PROGRAM COLOR 1 2 3 4 PRESET/KEY COLOR 1 2 3 4 EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE EFFECTS MIX WIPE KEY AUTO DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL DSK MASK INVERT DSK PVW AUTO Press to turn on. Set to the lowermost position.	NTSC: Y/C358 color bars PAL : Y/C443 color bars	• Set the TBC board to the uppermost position, while set the EFF TBC board to the lowermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Turn off the AUTO FREEZE switch of the EFF TBC board. (This switch is located at the position of the address 11T.) 3) Input Y/C signal of the camera or remote control unit to the Y/C INPUT-1 connector of the KM-D600's rear panel. 4) Set buttons and controls as shown in the left figure. **Note:** Set all the WIPE, MIX, KEY, DSK and DIGITAL EFFECTs to OFF.
2	VCXO	Frequency counter	Ⓣ J2 [TBC - 10C] ☆ ON ◎ TP11 [TBC - 11A] Ⓣ VCXO (C40) [TBC - 9A] ☆ NTSC: 3.579545 MHz ± 20 Hz PAL : 4.433619 MHz ± 20 Hz Ⓣ J2 [TBC - 10C] ☆ OFF	1) Set the switch connector of the board J2 to ON. 2) Adjust the frequency as specified. 3) Set J2 to OFF.
3	Color phase	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ TP4 [TBC - 11G] Ⓣ HUE (VR2) [TBC - 8A] ☆ Waveform is the same in the two points.	1) Adjust waveform in an optional line to be the same as that of 1H before.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	Input level	Oscilloscope (10 : 1, H-rate) Y/C color bars	• Y level ◎ TP2 [TBC - 8H] Ⓣ Y AD LEV (VR3) [TBC - 6D] ☆ NTSC: 1.3 Vp-p (75% white level) PAL : 1.73 Vp-p (100% white level) • R-Y level ◎ TP3 [TBC - 10H] Ⓣ R-Y AD LEV (VR1) [TBC - 8B] ☆ 1.3 Vp-p • B-Y level ◎ TP4 [TBC - 11G] Ⓣ B-Y AD LEV (VR7) [TBC - 10E] ☆ 1.3 Vp-p	1) Adjust the respective signal level as specified.   
5	Reference voltage of D/A converter	Digital voltmeter	◎ TP30 [TBC - 5K] Ⓣ DA REF (VR31) [TBC - 4H] ☆ 4 V DC	1) Adjust the reference voltage as specified.
6	H. lock	Oscilloscope (10 : 1, H-rate) DC range	◎ TP31 [TBC - 5K] Ⓣ H LOCK (L40) [TBC - 4L] ☆ 4.5 V DC	1) Adjust the voltage as specified.
7	Y pedestal level	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ TP9 [TBC - 2A] Ⓣ SETUP (VR4) [TBC - 6E] ☆ Pedestal level: flat	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
8	Chroma center level	Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [TBC - 2C] Ⓣ R-Y PED (VR5) [TBC - 9G] ☆ Flat in center of waveform • B-Y ◎ TP8 [TBC - 4D] Ⓣ B-Y PED (VR6) [TBC - 9F] ☆ Flat in center of waveform	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period.  
9	K factor	Oscilloscope (10 : 1, H-rate) 2T pulse (by test signal generator) Magnify this part on the oscilloscope.  2T pulse	◎ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y EQ (VR18) [TBC - 2E] ☆ Minimum distortion	1) Supply 2T pulse to the COMPOSITE INPUT -2 connector of the rear panel. (Y/C ↔ COMP selector switch is set to Y/C as it is.) 2) Press the respective "2" button of the PROGRAM BUS and PRESET/KEY BUS. 3) Minimize distortion. 
		Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [TBC - 2C] Ⓣ R-Y EQ (VR8) [TBC - 1E] ☆ Minimum ringing • B-Y ◎ TP8 [TBC - 4D] Ⓣ B-Y EQ (VR16) [TBC - 3E] ☆ Minimum ringing	4) Press the respective "1" button of the PROGRAM BUS and PRESET/KEY BUS. 5) Minimize ringing. 

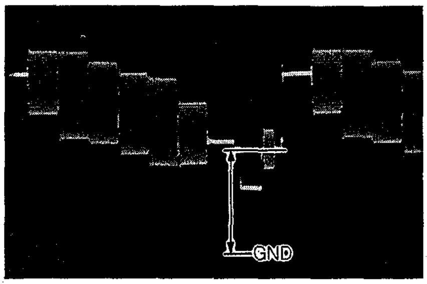
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
10	Y output level	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BND conversion device] Ⓣ Y LEV (VR19) [TBC - 3D] ☆ NTSC: 0.55 Vp-p PAL : 0.7 Vp-p	1) Adjust the signal level as specified. 
11	Carrier balance	Vectorscope Y/C color bars	◎ PGM COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C BAL (VR12) [TBC - 1B] Ⓣ C BAL (VR13) [TBC - 1B] Ⓣ C BAL (VR14) (PAL only) [TBC - 2B] ☆ Minimum carrier leak	1) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector of the rear panel (with 75-ohm termination). 2) Turn VR12 and VR13 alternately to minimize carrier leaks both in the white and black portions. 
12	C output level	Vectorscope Y/C color bars	◎ PGM COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ PHASE (VR9) [TBC - 3A] Ⓣ QUAD (VR17) [TBC - 4B] Ⓣ R-Y LEV (VR10) [TBC - 2D] Ⓣ C LEV (VR15) [TBC - 1A]  – PAL –	1) Connect a vectorscope to the PVW COMPOSITE OUTPUT connector. 2) Set the vectorscope's GAIN control to CAL or 75% (preset) position. 3) Alternately adjust the VRs so that every spot (R, G, B, Mg, Cy, Yl) is positioned in the respective point (⊞).  – NTSC –

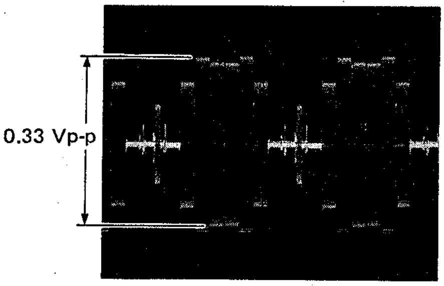
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
13	H. phase	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PGM COMPOSITE OUTPUT (with 75 Ω termination) Ⓣ H POS (VR30) [TBC - 3H] ☆ NTSC : 9.4 µsec PAL : 10 µsec	1) Connect the oscilloscope's probes to test points. 2) Adjust the period between falling portion of SYNC and rising portion of color bars. 

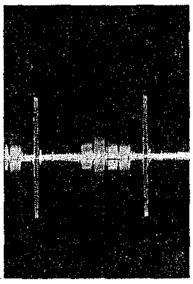
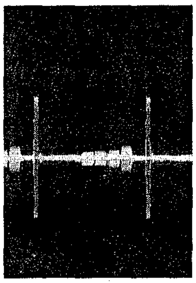
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure

3.16-N ADJUSTMENT OF Y/C SEPARATOR (U version)

Note: • For the following procedure, refer to "Adjustment Parts Location of Y/C SEPA board" on page 3-7.
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

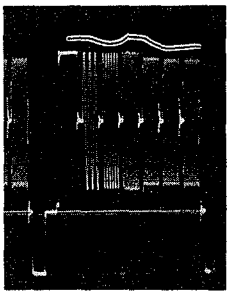
1	Preparation	Composite color bars	• Set the Y/C SEPA board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Input the color bars signal to the COMPOSITE INPUT-2 connector of the rear panel. (Set the Y/C ↔ COMP selector switch to the COMP position.) 3) Press the respective "2" buttons of the PROGRAOM BUS and PRESET/KEY BUS.
2	Bias	Oscilloscope (10 : 1, H-rate) DC range	PROGRAM BUS (Proceed in the following order.) ◎ TP1 [Y/C SEPA - 3P] ⦶ DC1 (VR1) [Y/C SEPA - 3P] ☆ 5.5 V DC ◎ TP2 [Y/C SEPA - 3P] ⦶ BIAS1 (VR2) [Y/C SEPA - 3P] ☆ 3 V DC ◎ TP3 [Y/C SEPA - 5O] ⦶ DC2 (VR4) [Y/C SEPA - 5P] ☆ 5.5 V DC ◎ TP4 [Y/C SEPA - 5P] ⦶ BIAS2 (VR5) [Y/C SEPA - 5O] ☆ 3 V DC PRESET/KEY BUS (Proceed in the following order.) ◎ TP11 [Y/C SEPA - 3G] ⦶ DC3(VR101) [Y/C SEPA - 3H] ☆ 5.5 V DC ◎ TP12 [Y/C SEPA - 3H] ⦶ BIAS3 (VR102) [Y/C SEPA - 3G] ☆ 3 V DC ◎ TP13 [Y/C SEPA - 5G] ⦶ DC4(VR104) [Y/C SEPA - 5G] ☆ 5.5 V DC ◎ TP14 [Y/C SEPA - 5G] ⦶ BIAS4 (VR104) [Y/C SEPA - 5G] ☆ 3 V DC	1) Adjust waveform so that the pedestal level becomes as specified. (Adjust in the order of DC1, BIAS1, DC2 and BIAS2.) 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⌽) Adjustment level (☆)	Adjustment procedure
3	V. correlation input level	Oscilloscope (10 : 1, H-rate) Composite color bars	PROGRAM BUS ◎ TP5 [Y/C SEPA - 9R] ⌽ C LEV 1 (VR7) [Y/C SEPA - 8R] ☆ 0.33 Vp-p	1) Adjust chroma level as specified. 
			◎ TP6 [Y/C SEPA - 9P] ⌽ C LEV 2 (VR8) [Y/C SEPA - 8P] ☆ 0.33 Vp-p	
			◎ TP7 [Y/C SEPA - 9P] ⌽ C LEV 3 (VR9) [Y/C SEPA - 8O] ☆ 0.33 Vp-p	
			PRESET/KEY BUS ◎ TP15 [Y/C SEPA - 9H] ⌽ C LEV 4 (VR107) [Y/C SEPA - 8H] ☆ 0.33 Vp-p	
			◎ TP16 [Y/C SEPA - 9H] ⌽ C LEV 5 (VR108) [Y/C SEPA - 8G] ☆ 0.33 Vp-p	
			◎ TP17 [Y/C SEPA - 9G] ⌽ C LEV 6 (VR109) [Y/C SEPA - 8F] ☆ 0.33 Vp-p	

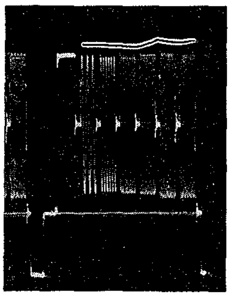
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	V. correlation input phase	Composite multi-burst	PROGRAM BUS ◎ TP8 [Y/C SEPA - 9N] Ⓣ 1H PHASE 1 (VR3) [Y/C SEPA - 5R] Ⓣ 2H PHASE 1 (VR6) [Y/C SEPA - 7P] ☆ Minimum carrier leak (4 MHz) PRESET/KEY BUS ◎ TP18 [Y/C SEPA - 9F] Ⓣ 1H PHASE 2 (VR103) [Y/C SEPA - 5H] Ⓣ 2H PHASE 2 (VR106) [Y/C SEPA - 7G] ☆ Minimum carrier leak (4 MHz)	1) Input multi-burst signal for color bars signal. 2) Alternately turn VRs to minimize crosstalk of V. correlation input as well as shape the waveform the best.  NG  OK

Reference

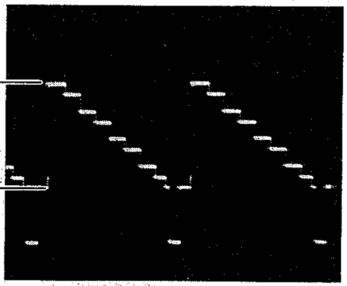
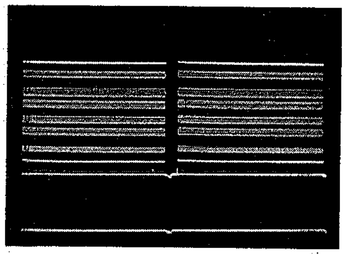
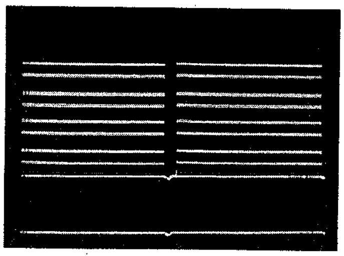
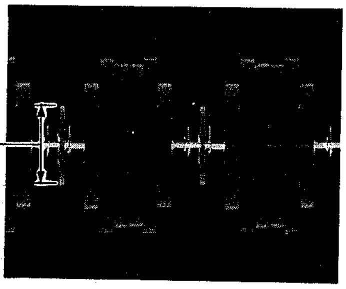
To set a judging standard of the quality of V. correlation in adjustment, PGM output can be utilized. If adjustment is improperly done, uneven waveform is observed as shown below, while, if it is proper, the waveform is even and slopes gently up rightwards.



Improper adjustment



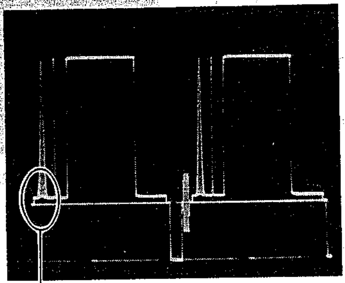
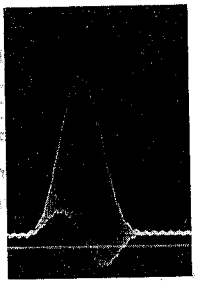
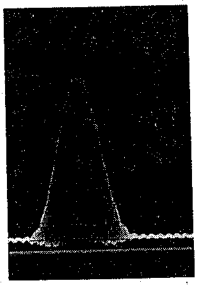
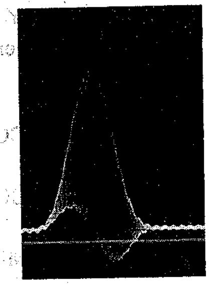
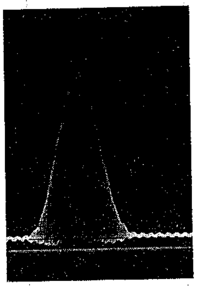
Proper adjustment

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
5	Y output level	Oscilloscope (10 : 1, H-rate) Composite color bars	PROGRAM BUS ☆ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y LEV 1 (VR11) [Y/C SEPA - 10O] ☆ 0.55 Vp-p (75% Y level)	1) Input color bars signal. 2) Adjust the level of Y signal as specified.  H-rate
		(H-rate)	PRESET/KEY BUS ◎ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y LEV 2 (VR111) [Y/C SEPA - 10G] ☆ 0.55 Vp-p (75% Y level)	
		(V-rate)	PROGRAM BUS ◎ PRM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ COMB DELAY 1 (VR10) [Y/C SEPA - 10R] Ⓣ COMB LEV 1 (VR12) [Y/C SEPA - 10O] ☆ Minimum chroma component	3) Alternately turn VRs to minimize residual chroma components.  NG
			PRESET/KEY BUS ☆ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ COMB DELAY 2 (VR110) [Y/C SEPA - 10 I] Ⓣ COMB LEV 2 (VR112) [Y/C SEPA - 10F] ☆ Minimum chroma component	 OK
6	C output level	Oscilloscope (10 : 1, H-rate)	PROGRAM BUS ◎ TP52 [Y/C SEPA - 10K] Ⓣ C GAIN 1 (VR500) [Y/C SEPA - 9M] ☆ 0.286 Vp-p (burst level)	1) Adjust chroma level as specified. 
			PRESET/KEY BUS ◎ TP53 [Y/C SEPA - 10C] Ⓣ C GAIN 2 (VR501) [Y/C SEPA - 9D] ☆ 0.286 Vp-p (burst level)	

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.17 ADJUSTMENT OF Y/C TIMING

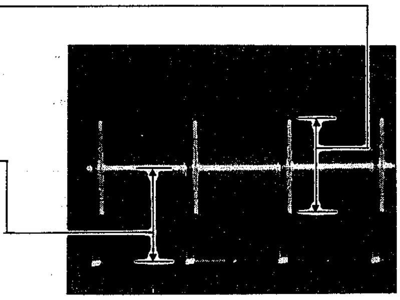
Note:
- For the following procedure, refer to "Adjustment Parts Location of EFF TBC board" on page 3-9 and "TBC board" on page 3-10.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment part is located in. (The section numbers are shown in the real boards.)

1	PRESET/ KEY bus output Y/C timing	Composite 2T pulse  Magnify this part on the oscilloscope. Oscilloscope (10 : 1, H-rate) or Waveform monitor	• Set the EFF TBC board to the uppermost position. ◎ PVW COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C POS (S1) [EFF TBC - 10U] ☆ Minimum distortion	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Input 2T pulse to the COMPOSITE INPUT-2 connector of the rear panel. (Set the Y/C ↔ COMP selector switch to the COMP position.) 3) Press the respective "2" buttons of the PROGRAM BUS and PRESET/KEY BUS. 4) Minimize distortion.  NG  OK
2	PROGRAM bus output Y/C timing		• Replace the EFF TBC board with the TBC board. TBC : Uppermost EFF TBC : Lowermost ☆ PGM COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C POS (S1) [TBC - 10M] ☆ Minimum distortion	1) Press the respective "2" buttons of the PROGRAUM BUS and PRESET/KEY BUS. 2) Minimize distortion.  NG  OK

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.18 ADJUSTMENT OF B.B. (BLACK BURST) SIGNAL

Note:
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjust-
- ment parts are located in. (The section numbers are shown in the real boards.)

1	B.B. signal		• Set the KEY board to the uppermost position. ◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ BURST GAIN (R487) [KEY - 7S] ☆ Burst level NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ SYNC GAIN (R489) [KEY - 8S] ☆ SYNC level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode (see Section 2.5). 2) Adjust to obtain specified values (with 75-ohm terminator). **Note:** Adjust in the order of burst level (R487) first and then sync. level (R489). 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure

3.19 ADJUSTMENT OF WIPE PATTERN WAVEFORM

Note: • For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.

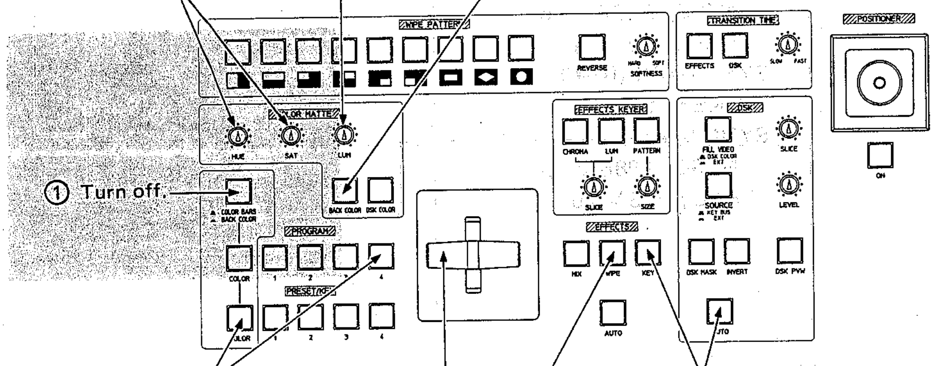
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the KEY board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode (see Section 2.5). 2) Observe PGM output (or COMPOSITE output, or Y/C output) by a TV monitor. 3) Set the buttons and controls on the control panel as shown below. (Proceed in the order of ① to ⑧.)

⑧ Turn clockwise once, and turn fully counter-clockwise.

⑦ Center position

⑥ Turn on.


WIPE PATTERN
REVERSE
HARD SOFT
SOFTNESS
TRANSITION TIME
EFFECTS
DSK
SLOW FAST
POSITIONER
ON
COLOR MATTE
HUE
SAT
LUM
COLOR BARS
BACK COLOR
BACK COLOR
DSK COLOR
PROGRAM
COLOR
1
2
3
4
PRESET/KEY
EFFECTS KEYER
CHROMA
LUM
PATTERN
SLICE
SIZE
EFFECTS
MIX
WIPE
KEY
AUTO
DSK
FILL VIDEO
DSK COLOR
EXT
SLICE
SOURCE
KEY BUS
EXT
LEVEL
DSK MASK
INVERT
DSK PVW
AUTO

① Turn off.

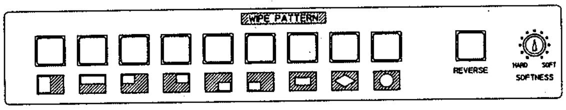
③ Turn on. (Do not supply signal to INPUT 4 on the rear panel.)

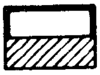
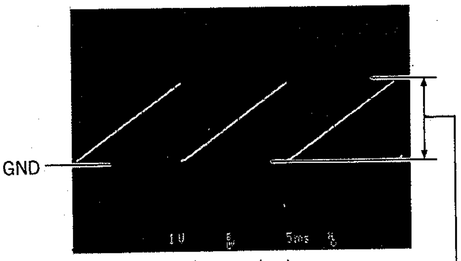
④ Turn on.

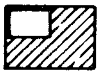
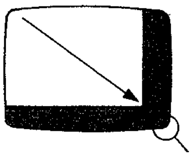
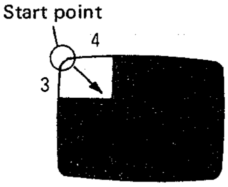
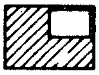
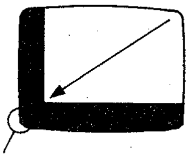
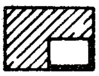
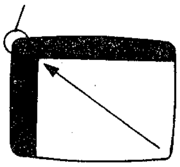
⑤ Turn off.

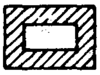
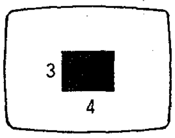
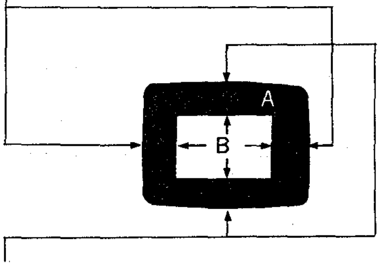
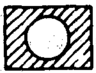
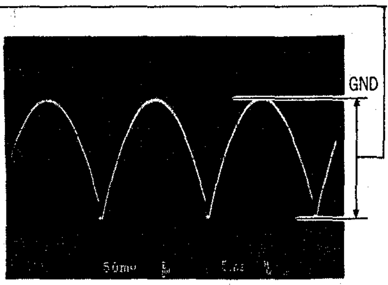
② Lowermost position

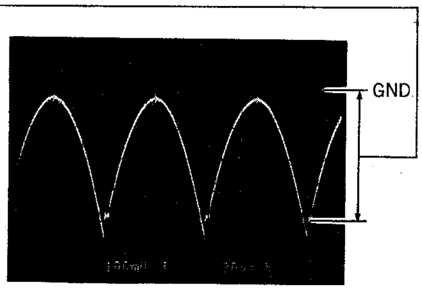
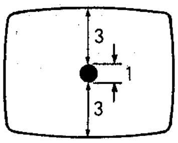
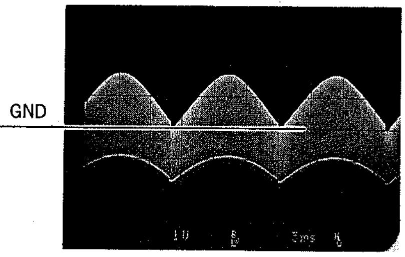
• Select a wipe pattern corresponding to that shown in this colum with the WIPE PATTERN button.

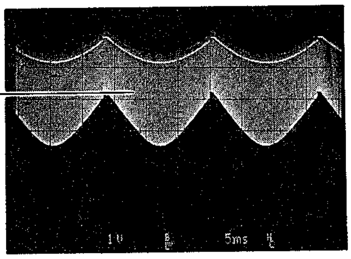
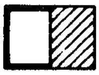
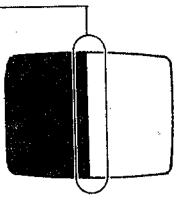

WIPE PATTERN
REVERSE
HARD SOFT
SOFTNESS

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
2	Sawtooth waveform	 Oscilloscope (10 : 1, V-rate)	◎ TP2 [KEY - 6F] ⦶ V. TOP LEV (R58) [KEY - 1E] ☆ DC level = GND level ⦶ V. SAW LEV (R77) [KEY - 3D] ☆ Peak level: 2.5 V	1) Adjust the DC level of sawtooth waveform to be GND level.  GND (5 msec/div) 2) Adjust the peak level of the sawtooth waveform as specified.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
3	Corner wipe		◎ PROGRAM MONITOR ⦶ H. SAW LEV (R26) [KEY - 3A] ☆ Coincide end positions of H and V wipe operations	1) Observing the program monitor, move the FADER lever and take note of the ending position of the wipe operation. (Bottom right) 2) Adjust R26 so that horizontal and vertical wipe operations end at the same time.  End position of wipe operations
			⦶ V. TOP LEV (R58) [KEY - 1E] ☆ H : V = 4 : 3	3) In the same manner as the above step 1), move the FADER lever and take note of the beginning position of wipe operation. 4) Adjust R58 so that H : V is 4 : 3. 
			⦶ H. INV. DC (R49) [KEY - 5A] ☆ Coincide end positions of H and V wipe operations.	5) Observing the program monitor, move the FADER lever and take note of the end position of wipe operation. (Bottom left) 6) Adjust R49 so that horizontal and vertical wipe operations end at the same time.  End position of wipe operations
			⦶ V. INV. DC (R97) [KEY - 5C] ☆ Coincide end positions of H and V wipe operations.	7) Observing the program monitor, move the FADER lever and take note of the ending position of wipe operation. (Top left) 8) Adjust R97 so that horizontal and vertical wipe operations end at the same time. End position of wipe operations 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	Window wipe		◎ PROGRAM MONITOR Ⓣ H. TOP LEV (R30) [KEY - 4D] ☆ H : V = 4 : 3	1) Observing the program monitor, move the FADER lever to reduce the center square. 2) Adjust R30 so that H : V is 4 : 3. 
			Ⓣ H. TRI LEV (R24) [KEY - 4A] ☆ Equal width in right and left	3) Move the FADER lever and stop it just before end of wipe operation. 4) Adjust to equalize widths of right and left margins. 
			Ⓣ V. TRI LEV (R75) [KEY - 3D] ☆ Equal width in upper and lower margins.	5) Adjust to equalize widths of upper and lower margins.
5	Round wipe	 Oscilloscope (10 : 1, V-rate)	◎ TP5 [KEY - 5E] Ⓣ V. PARA LEV (R86) [KEY - 5E] ☆ DC level: –0.2 V	1) Adjust the DC level of parabolic waveform (V. period) as specified.  (5 msec/div)
			Ⓣ CONE BIAS (R102) [KEY - 7A] ☆ Full clockwise position	2) Turn R102 fully clockwise.

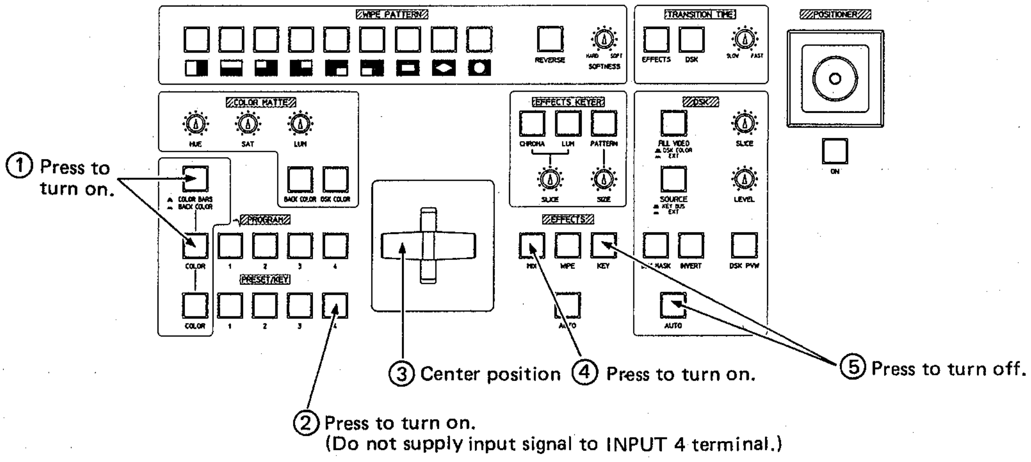
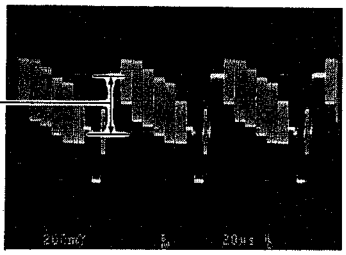
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
		Oscilloscope (10 : 1, H-rate)	◎ TP4 [KEY - 7A] Ⓣ H. PARA LEV (R38) [KEY - 4C] ☆ DC level: –0.4 V	3) Adjust the DC level of parabolic waveform (H. period) as specified.  (20μsec/div)
			◎ PROGRAM MONITOR	4) Move the FADER lever to set the size of the wipe pattern to the following ratio. 
			Ⓣ H. PARA ADJ (R37) [KEY - 3A] Ⓣ V. PARA ADJ (R84) [KEY - 3E] ☆ Perfectly round pattern	5) Alternately adjust VRs to make the pattern perfectly round.
		Oscilloscope (10 : 1, V-rate)	◎ TP3 [KEY - 11D] Ⓣ CONE DC (R118) [KEY - 7B] ☆ Adjust DC level to –0.6 V. Coinside this point to the GND level.	6) Press the REVERSE button to make it illuminate. 7) Adjust the DC level of H/V mixed waveform (V. period). 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			Ⓣ CONE INV DC (R121) [KEY - 8B] ☆ Adjust DC level to +2.0 V. Coinside this point to the GND level.	8) Press the REVERSE button again to turn it off. 9) Adjust the DC level of H/V mixed waveform (V. period). 
6	Softness		◎ PROGRAM MONITOR Ⓣ BL. DC (R182) [KEY - 9E] ☆ Center of wipe border is stable.	1) Set the FADER lever to the center position. 2) Turn the SOFTNESS control clockwise and counterclockwise and take note of the border of the wipe pattern. 3) Adjust R182 to stabilize the center of the wipe's border in the horizontal direction. 

3.20 ADJUSTMENT OF MIX DC VOLTAGE

Note: • For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.

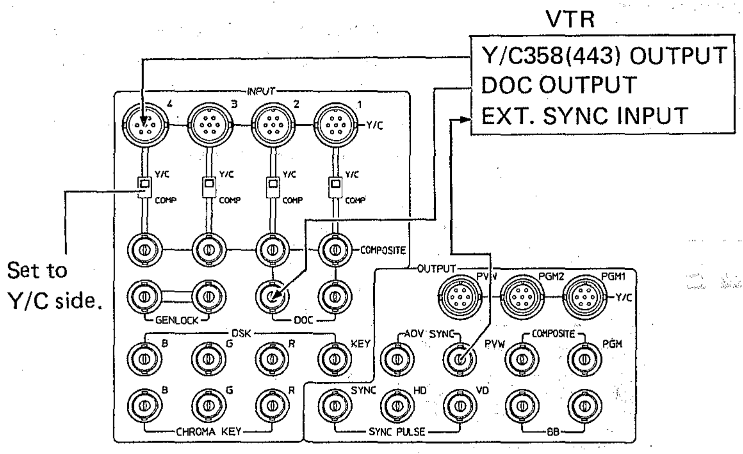
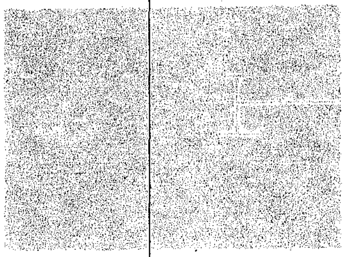
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the KEY board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode (see Section 2.5). 2) Connect an oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel. 3) Set the buttons and controls on the control panel as shown below.  WIPE PATTERN REVERSE HARD SOFT SOFTNESS TRANSITION TIME EFFECTS DSK SLOW FAST POSITIONER COLOR MATTE HUE SAT LUM EFFECTS KEYER CHROMA LUM PATTERN SLICE SIZE DSK FILL VIDEO DSK COLOR EXT SLICE SOURCE KEY BUS EXT LEVEL ON COLOR BARS BACK COLOR BACK COLOR DSK COLOR PROGRAM COLOR 1 2 3 4 PRESET/KEY COLOR 1 2 3 4 EFFECTS MIX WIPE KEY MASK INVERT DSK PVW AUTO AUTO ① Press to turn on. ② Press to turn on. (Do not supply input signal to INPUT 4 terminal.) ③ Center position ④ Press to turn on. ⑤ Press to turn off.
2	DC level	Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ MIX DC (R213) [KEY - 7G] ☆ Y signal level NTSC; 0.275 Vp-p PAL; 0.35 Vp-p Ⓣ KEY INV DC (R352) [KEY - 9K] ☆ Y signal level NTSC; 0.275 Vp-p PAL; 0.35 Vp-p	1) Adjust Y signal level.  2) Press the KEY button of the EFFECTS section to turn it on. 3) While observing TP35's logic level on the other channel of the oscilloscope, set the FADER lever to the uppermost position. 4) When the lever is set to the uppermost position, confirm that the logic level is 0 V DC. If not, set the lever to the lowermost position and check it again. 5) Set the FADER lever to the center position. 6) Adjust Y signal level as specified.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure

3.21 CONFIRMATION OF DOC (DROPOUT COMPENSATION) CIRCUIT

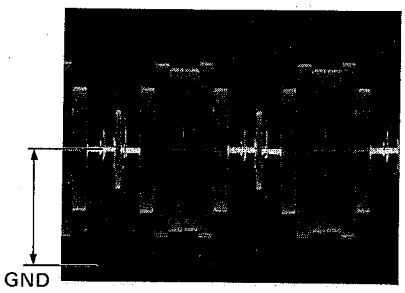
Note: For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5. Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards).

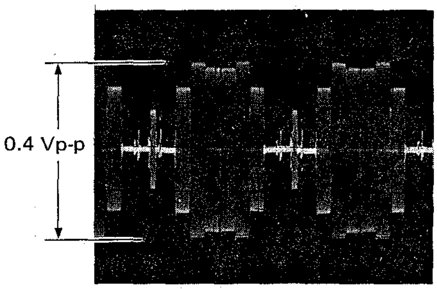
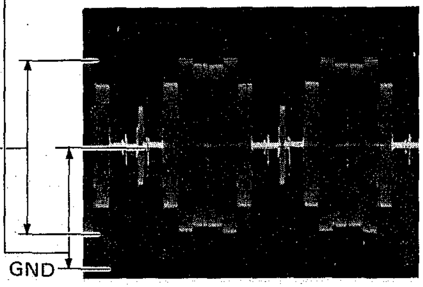
1	DOC circuit  VTR Y/C358(443) OUTPUT DOC OUTPUT EXT. SYNC INPUT Set to Y/C side. INPUT 4 3 2 1 Y/C COMP COMPOSITE GENLOCK DOC DSK B G R KEY OUTPUT PVW PGM2 PGM1 ADV SYNC COMPOSITE PGM SYNC HD VD SYNC PULSE BB CHROMA KEY 	Oscilloscope (10 : 1, H/V-rate)	◎ TP28 [VIDEO - 10L] ◎ TP29 [VIDEO - 8L]	1) Connect a VTR with KM-D600 as shown on the left. 2) Press respective "1" buttons of the PROGRAM BUS and PRESET/KEY bus. 3) Play a tape containing dropout in signal. 4) Confirm there is pulse generated. **Note:** Condition of pulse generation differs by the state of the tape and amount of dropout. The PGM DOC SENSE (R405) and PST DOC SENSE (R441) are set to the respective mechanical center positions at shipment. Although sensitivity of the DOC circuit can be changed by turning them, do not disturb these VRs unless it needs adjustment.

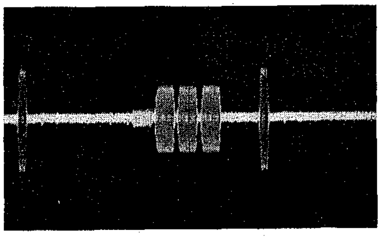
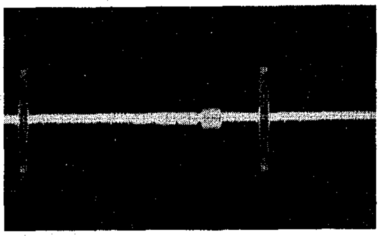
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.16-P ADJUSTMENT OF Y/C SEPARATOR (PAL version)

Note:
- For the following procedure, refer to "Adjustment Parts Location of Y/C SEPA board" on page 3-7.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

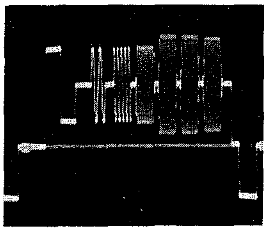
1	Preparation	Composite color bars	• Set the Y/C SEPA board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Input the color bars signal to the COMPOSITE INPUT-2 connector of the rear panel. (Set the Y/C ↔ COMP selector switch to the COMP position.) 3) Press the respective "2" buttons of the PROGRAOM BUS and PRESET/KEY BUS.
2	Bias	Oscilloscope (10 : 1, H-rate) DC range	PROGRAM BUS (Proceed in the following order.) ◎ TP21 [Y/C SEPA - 4K] Ⓣ DC1 (VR201)[Y/C SEPA- 3L] ☆ 5.5 V DC ◎ TP27 [Y/C SEPA - 4L] Ⓣ BIAS1 (VR202) [Y/C SEPA - 3K] ☆ 3 V DC ◎ TP22 [Y/C SEPA - 6K] Ⓣ DC2 (VR204)[Y/C SEPA- 5L] ☆ 5.5 V DC PRESET/KEY BUS (Proceed in the following order.) ◎ TP31 [Y/C SEPA - 4C] Ⓣ DC3 (VR301)[Y/C SEPA- 3C] ☆ 5.5 V DC ◎ TP32 [Y/C SEPA - 6C] Ⓣ BIAS3 (VR302) [Y/C SEPA - 4D] ☆ 3 V DC ◎ TP33 [Y/C SEPA - 5D] Ⓣ DC4 (VR304)[Y/C SEPA-5C] ☆ 5.5 V DC	1) Adjust waveform so that the pedestal level becomes as specified. (Adjust in the order of DC1, BIAS1, DC2 and BIAS2.) 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	1H delayed signal level	Oscilloscope (10 : 1, H-rate) Composite color bars	PROGRAM BUS ◎ TP22 [Y/C SEPA - 6K] Ⓣ 1H LEV1 (VR203) [Y/C SEPA - 4M] ☆ 0.4 Vp-p PRESET/KEY BUS ◎ TP32 [Y/C SEPA - 6C] Ⓣ 1H LEV2 (VR303) [Y/C SEPA - 4D] ☆ 0.4 Vp-p	1) Adjust chroma level as specified. 
4	2H delayed signal level		PROGRAM BUS ◎ TP24 [Y/C SEPA - 8L] Ⓣ BIAS2 (VR205) [Y/C SEPA - 5K] ☆ Pedestal level : 5 V DC Ⓣ 2H LEV1 (VR206) [Y/C SEPA - 6M] ☆ Chroma level : 0.58 Vp-p PRESET/KEY BUS ◎ TP34 [Y/C SEPA - 8C] Ⓣ BIAS4 (VR305) [Y/C SEPA - 5C] ☆ Pedestal level : 5 V DC Ⓣ 2H LEV2 (VR306) [Y/C SEPA - 6D] ☆ Chroma level : 0.58 Vp-p	1) Adjust pedestal level and chroma level as specified.  DC range

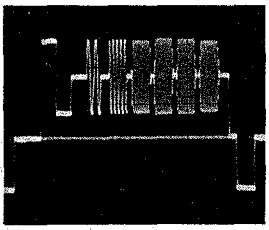
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
5	V.correlation input phase and level	Composite multi-burst	PROGRAM BUS ◎ TP25 [Y/C SEPA - 8L] Ⓣ 0H PHASE1 (VR211) [Y/C SEPA - 2K] Ⓣ 2H PHASE1 (VR207) [Y/C SEPA - 7M] Ⓣ COMB BAL1 (VR208) [Y/C SEPA - 8L] 2H PHASE1 (VR207) and COMB BAL1 (VR208) need repeated adjustments. In this adjustment, minimize crosstalk by turning 2H LEV1 (VR206). → VR207 → VR206 VR208 ← PRESET/KEY BUS ◎ TP35 [Y/C SEPA - 8D] Ⓣ 0H PHASE2 [VR311) [Y/C SEPA - 2C] Ⓣ 2H PHASE2 (VR307) [Y/C SEPA - 7E] Ⓣ COMB BAL2 (VR308) [Y/C SEPA - 8D] 2H PHASE2 (VR307) and COMB BAL2 (VR308) need repeated adjustments. In this adjustment, minimize crosstalk by turning 2H LEV2 (VR306). → VR307 → VR306 VR308 ←	1) Input multi-burst signal for color bars signal. 2) Alternately turn VRs to minimize crosstalk of V. correlation input as well as shape the waveform the best.  NG  OK

Reference

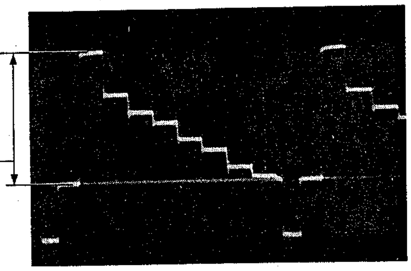
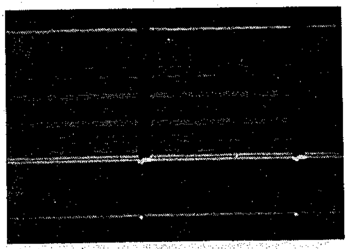
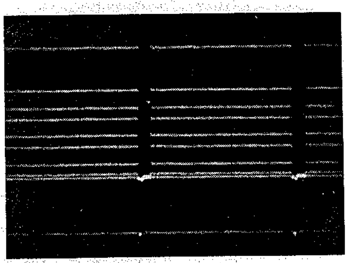
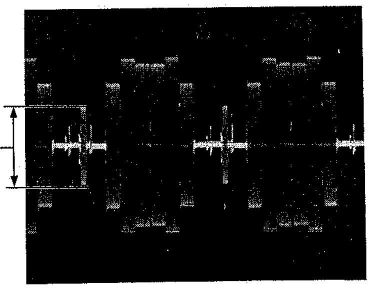
To set a judging standard of the quality of V. correlation in adjustment, PGM output can be utilized. If adjustment is improperly done, uneven waveform is observed as shown below, while, if it is proper, the waveform is even and slopes gently up rightwards.



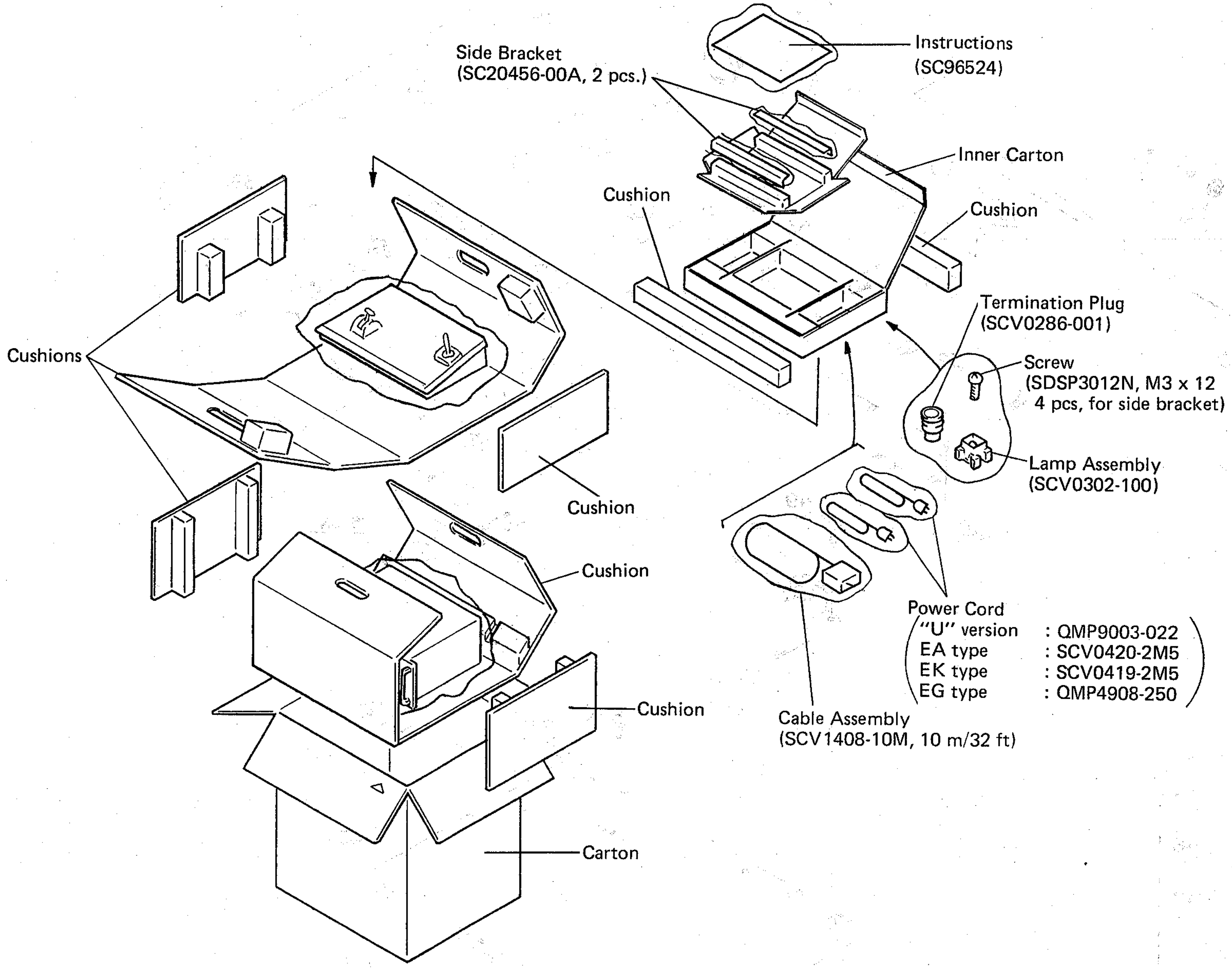
Improper adjustment



Proper adjustment

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
5	Y output level	Oscilloscope (10 : 1, H-rate) Composite color bars (H-rate)	PROGRAM BUS ☆ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] ⦶ Y LEV1 (VR210) [Y/C SEPA - 8N] ☆ 0.7 Vp-p (Y level) PRESET/KEY BUS ◎ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] ⦶ Y LEV2 (VR310) [Y/C SEPA - 8E] ☆ 0.7 Vp-p (Y level)	1) Input color bars signal. 2) Adjust the level of Y signal as specified.  H-rate
		(V-rate)	PROGRAM BUS ◎ PRM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] ⦶ COMB DELAY1 (VR209) [Y/C SEPA - 7N] ⦶ C LEV1 (VR212) [Y/C SEPA - 8N] ☆ Minimum chroma component PRESET/KEY BUS ☆ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] ⦶ COMB DELAY2 (VR309) [Y/C SEPA - 7E] ⦶ COMB LEV2 (VR312) [Y/C SEPA - 8E] ☆ Minimum chroma component	3) Alternately turn VRs to minimize residual chroma components.  NG  OK
6	C output level	Oscilloscope (10 : 1, H-rate)	PROGRAM BUS ◎ TP52 [Y/C SEPA - 10K] ⦶ C GAIN 1 (VR500) [Y/C SEPA - 9M] ☆ 0.3 Vp-p (burst level) PRESET/KEY BUS ◎ TP53 [Y/C SEPA - 10C] ⦶ C GAIN 2 (VR501) [Y/C SEPA - 9D] ☆ 0.3 Vp-p (burst level)	1) Adjust chroma level as specified. 

SECTION 4
REPACKING

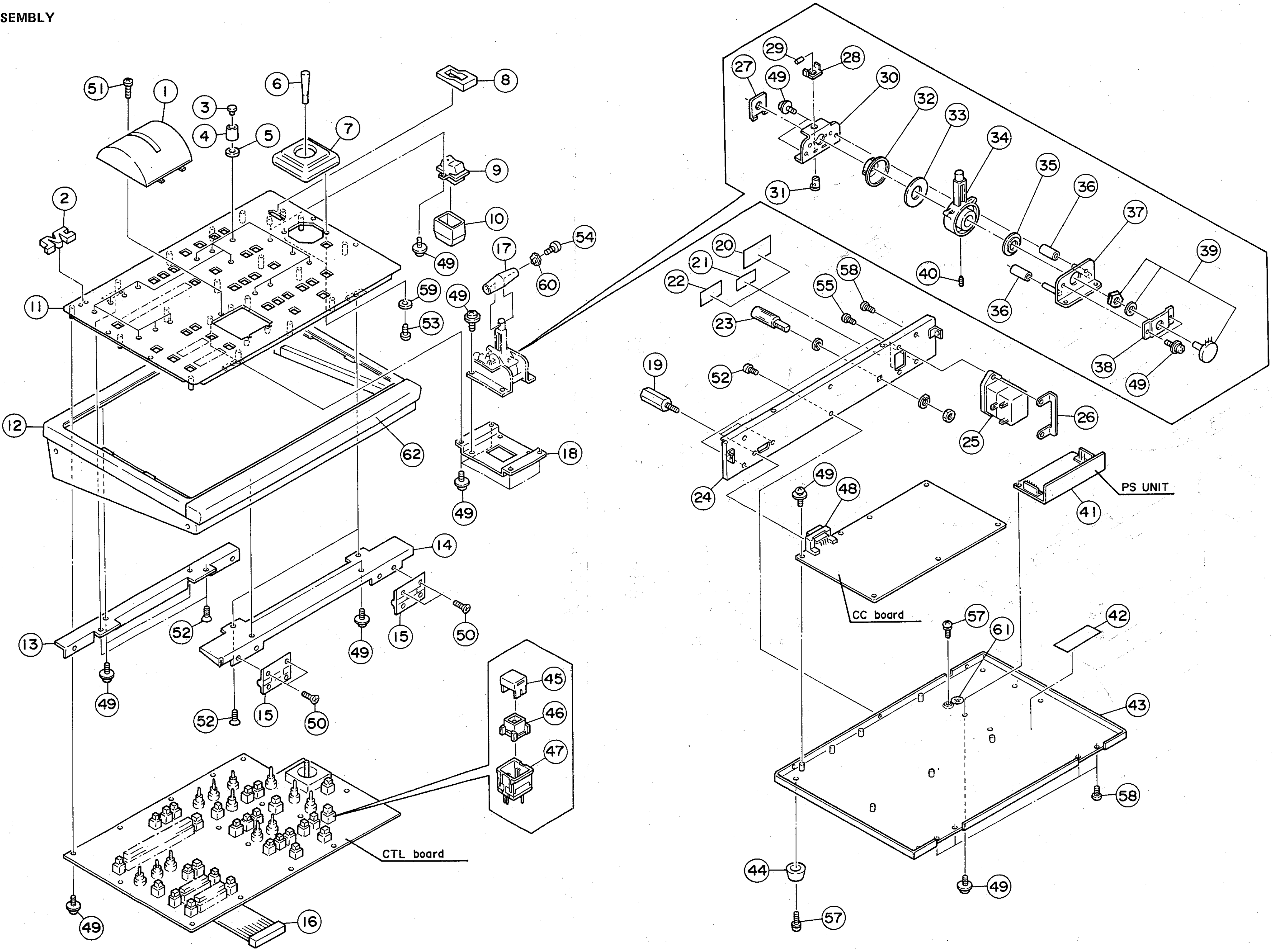

Side Bracket
(SC20456-00A, 2 pcs.)
Instructions
(SC96524)
Inner Carton
Cushion
Cushion
Cushions
Termination Plug
(SCV0286-001)
Screw
(SDSP3012N, M3 x 12
4 pcs, for side bracket)
Lamp Assembly
(SCV0302-100)
Cushion
Cushion
Power Cord
"U" version : QMP9003-022
EA type : SCV0420-2M5
EK type : SCV0419-2M5
EG type : QMP4908-250
Cushion
Cable Assembly
(SCV1408-10M, 10 m/32 ft)
Carton

SECTION 5
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.
For maximum reliability and performance, all other replacement parts should be identical to those specified.

5.1 CONTROL UNIT ASSEMBLY



51
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CTL board
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PS UNIT
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CC board
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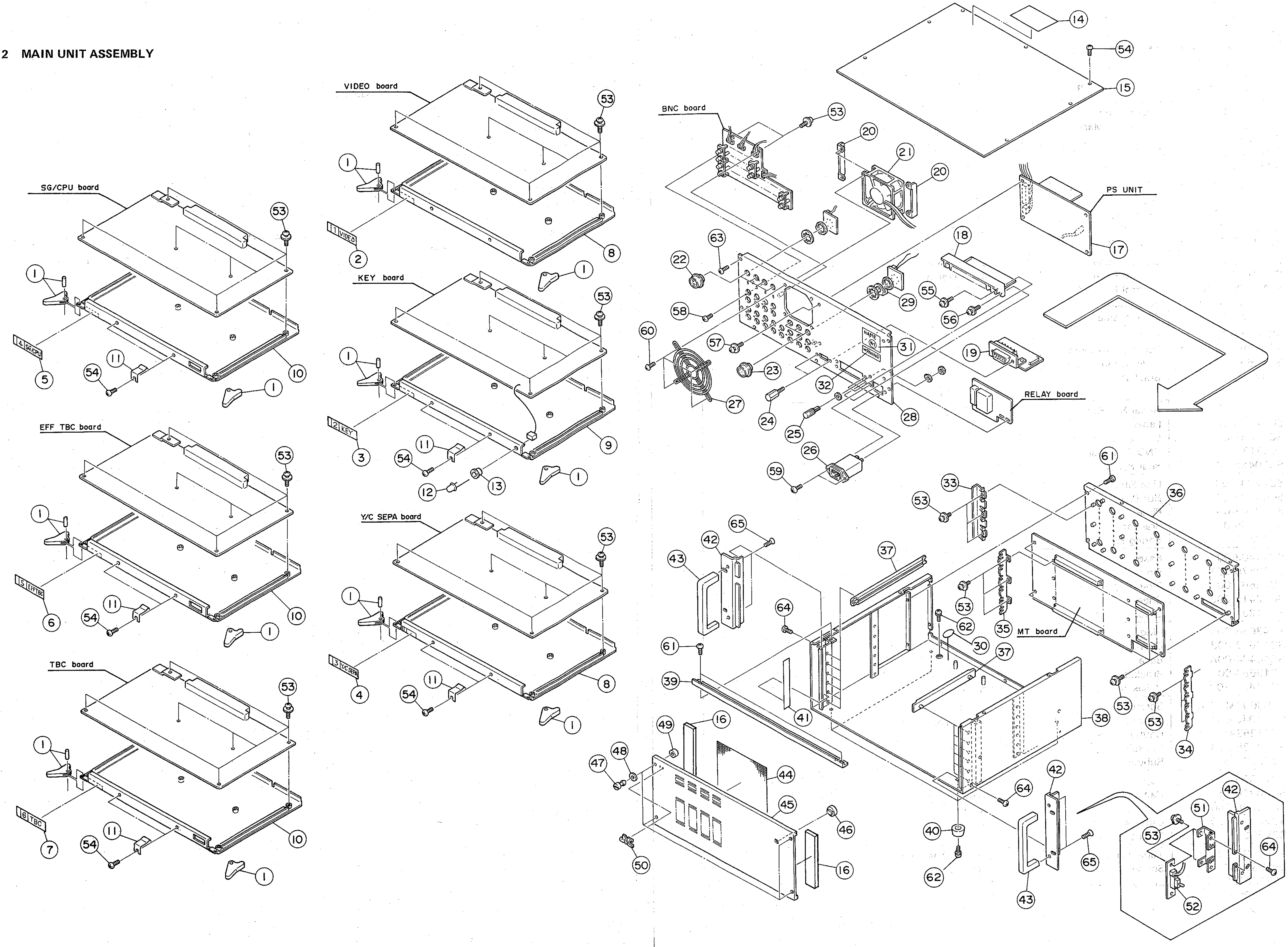
● KM-D600 Control unit assembly list M 1

M 1 M M ☐☐☐☐

Symbol No.	Part No.	Part Name	Description
1	SC31280-001	Escutcheon	
2	PGD30011-1	JVC Logo Mark	
3	SC40685-021	Knob Cap	
4	SC40683-021	Knob	
5	SC40724-001	Spacer	
6	SC43675-001	Knob	
7	SC31159-001	Escutcheon	
8	SC42025-001	Switch Guide	
⚠ 9	QSE2A21-S03	Power Switch	POWER
⚠ 10	SCV1327-001	Switch Cover	
11	SC10136-01A	Control Panel	for U version
	SC10136-02A	Control Panel	for E version
12	SCM0590-00A	Control Cover Assembly	Including ㉜
13	SC20454-001	Rear Frame	
14	SC20453-001	Front Frame	
15	SC40913-002	Hinge	
16	SC31297-34-22	Flat Wire Assembly	34-34pin
17	SC43662-001	Fader Knob	
18	SC44400-001	Bracket	
19	—	—	Part of 48
20	—	Serial No. Plate	43621SS
21	SC44780-001	Label	for E version
22	SC41058-002	Caution Label	
23	E03619-001	GND Terminal	
24	SC20455-00A	Rear Panel	
⚠ 25	SCV1944-001	Line Filter	AC INPUT
26	SC44835-001	Nut Plate	
27	SC43669-001	Plate	
28	SC43859-001	Bracket	
29	PRE2014	Spring Pin	
30	SC44403-001	Base	
31	SC43670-001	Pin	
32	SC43667-001	Ring	
33	SC42419-003	Sheet	
34	SC31281-001	Lever	
35	SC43666-001	Ring	
36	SC43512-003	Cushion	
37	SC44404-00A	Base	
38	SC43664-001	Bracket	
39	SCV1433-102	V.Resistor	FADER
40	YRS3004M	Screw	M3×4
41	SCV1943-001	PS unit	for Uversion
42	SC41252-001	Caution Label	
43	SC10135-00A	Chassis	
44	QZF2207-001	Rubber Foot	
45	SCV0326-100	Cap	White
	SCV0326-150	Cap	Yellow
	SCV0326-140	Cap	Orange
46	SCV0302-100	Lamp Assembly	
47	SCV1439	Push Switch	
48	SCV1932-102	15pin Connector	D-SUB,TO MAIN UNIT
49	DPSP3006Z	Screw	M3×6
50	SSSP3006N	Screw	M3×6
51	SDSP3006M	Screw	M3×6
52	SBST3006M	Screw	M3×6
53	SBSF2606M	Screw	M2.6×6
54	LPSP3008M	Screw	M3×8
55	SDSP3008M	Screw	M3×8
56	—	—	
57	LPSP4006Z	Screw	M4×6
58	SDSP3006R	Screw	M3×6
59	Q03091-102	Washer	
60	WBS3000N	Washer	
61	SC40855-001	Label	EARTH
62	SC20452-001	Pad	

5.2 MAIN UNIT ASSEMBLY


SG/CPU board
VIDEO board
KEY board
EFF TBC board
Y/C SEPA board
TBC board
BNC board
PS UNIT
RELAY board
MT board
4 SG/CPU
1 VIDEO
2 KEY
5 EFF TBC
3 Y/C SEPA
6 TBC
NAME
WARNING
1
2
3
4
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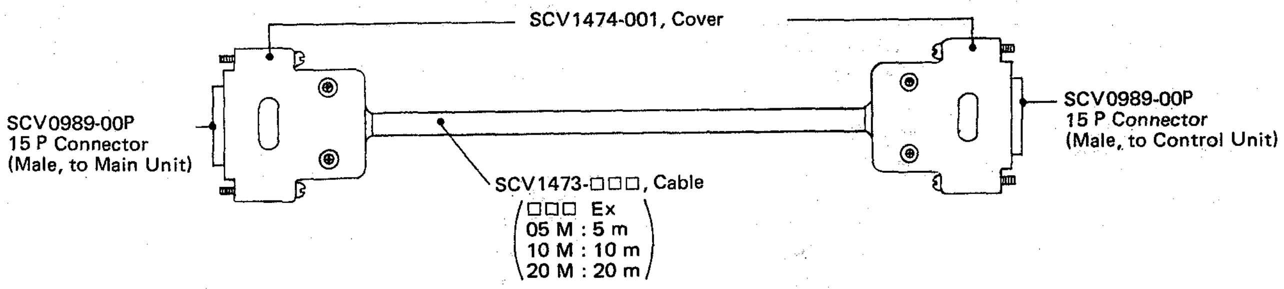
● KM-D600 Main unit assembly list M 2

M 2 M M ☐ ☐ ☐ ☐

Symbol No.	Part No.	Part Name	Description
1	SCV0296-001	Lever	
2	SC44814-011	Label 1	VIDEO board
3	SC44814-021	Label 2	KEY board
4	SC44814-031	Label 3	Y/C SEPA board
5	SC44814-041	Label 4	SG/CPU board
6	SC44814-051	Label 5	EFF TBC board
7	SC44814-061	Label 6	TBC board
8	SC10133-01A	Panel Base	VIDEO,Y/C SEPA
9	SC10133-02A	Panel Base	KEY
10	SC10133-03A	Panel Base	SG/CPU,EFF TBC,TBC
11	SC44479-001	Spring	
12	GL-5HD22	L.E.D.	POWER
13	SM3512	Mount	
14	SC41058-002	Caution Label	
15	SC20451-001	Top Cover	
16	SC44927-001	Sheet	
⚠ 17	SCV1986-00N	PS Unit	for U version
	SCV1986-00P	PS Unit	for E version
18	SCV1607-007	Terminal Board	GPI,TALLY
19	SCV1932-501	15pin Connector	D-SUB,TO CONTROL UNIT
20	SC43930-001	Bracket	
21	SCV1435-002	Fan Assembly	
22	SCV1213-001	7pin Connector	Y/C INPUT 1-4
23	SCV1214-002	7pin Connector	Y/C OUTPUT
24	—	—	Part of 19
25	E03619-001	GND Terminal	
⚠ 26	SSV0577	Line Filter	AC INPUT
27	SCV1577-001	Fan Guard	
28	SC10132-00A	Rear Panel	
29	SC44370-001	Lug Plate	
30	SC40855-001	Label	EARTH
31	—	Serial No. Plate	43621SS
32	SC44780-001	Caution Label	for E version
	SC44530-001	Caution Label	for U version
33	SC44809-001	Spring	
34	SC44810-011	Guide Bracket1	
35	SC44810-021	Guide Bracket2	
36	SC10131-00A	Mother Bracket	
37	SCV1626-001	Guide	
38	SC10130-00A	Chassis Assembly	
39	SC31411-011	Angle	
40	E47227-006	Rubber Foot	
41	SC44813-001	Label	
42	SC31112-011	Side Bracket	
43	SC40702-001	Handle	
44	SC43826-001	Net	
45	SC20375-003	Front Panel	
46	SM40303-002	Lens	
47	SC40703-001	Screw	
48	SC40724-001	Spacer	
49	SC40756-001	Stopper	
50	PGD30011-1	JVC Logo Mark	
51	SC44811-001	Bracket	
52	SCV0337-002	Power Switch	POWER
53	DPSP3006Z	Screw	M3×6

Symbol No.	Part No.	Part Name	Description
54	SDSP3006R	Screw	M3×6
55	DPSP3025Z	Screw	M3×25
56	DPSP3012Z	Screw	M3×12
57	DPSP3006M	Screw	M3×6
58	SBSF3008M	Screw	M3×8
59	SBST3008M	Screw	M3×8
60	SDSP4012M	Screw	M4×12
61	SBST3006Z	Screw	M3×6
62	LPSP4006Z	Screw	M4×6
63	SBST3006M	Screw	M3×6
64	SDSP3008R	Screw	M3×8
65	SSSP5012N	Screw	M5×12

- **Accessory cable assembly (SCV1408-10M)**


SCV1474-001, Cover
SCV0989-00P
15 P Connector
(Male, to Main Unit)
SCV0989-00P
15 P Connector
(Male, to Control Unit)
SCV1473-□□□, Cable
□□□ Ex
05 M : 5 m
10 M : 10 m
20 M : 20 m

Recommended maximum length is 100 m.

SECTION 6
CHARTS AND DIAGRAMS

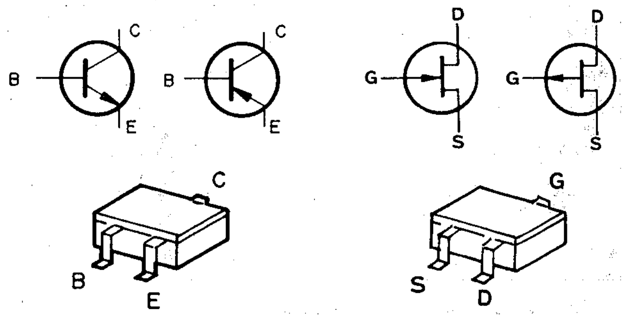
SCHEMATIC DIAGRAM NOTES

- **Schematic safety precaution**

▨ parts are safety related parts.
When replacing them, be sure to use the specified parts.

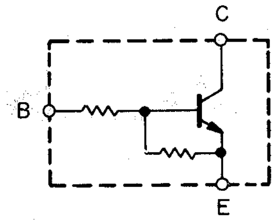
- **Chip transistors and FETs**

Transistors **FETs**

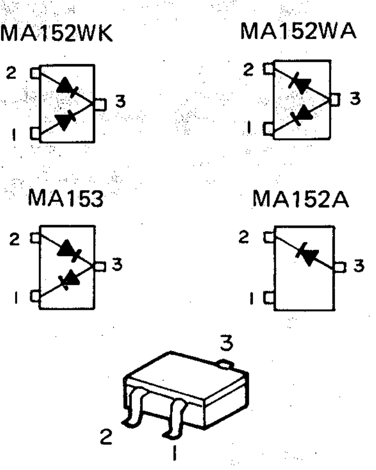


- **Digital Transistor**

DTC124K



- **Chip diodes**

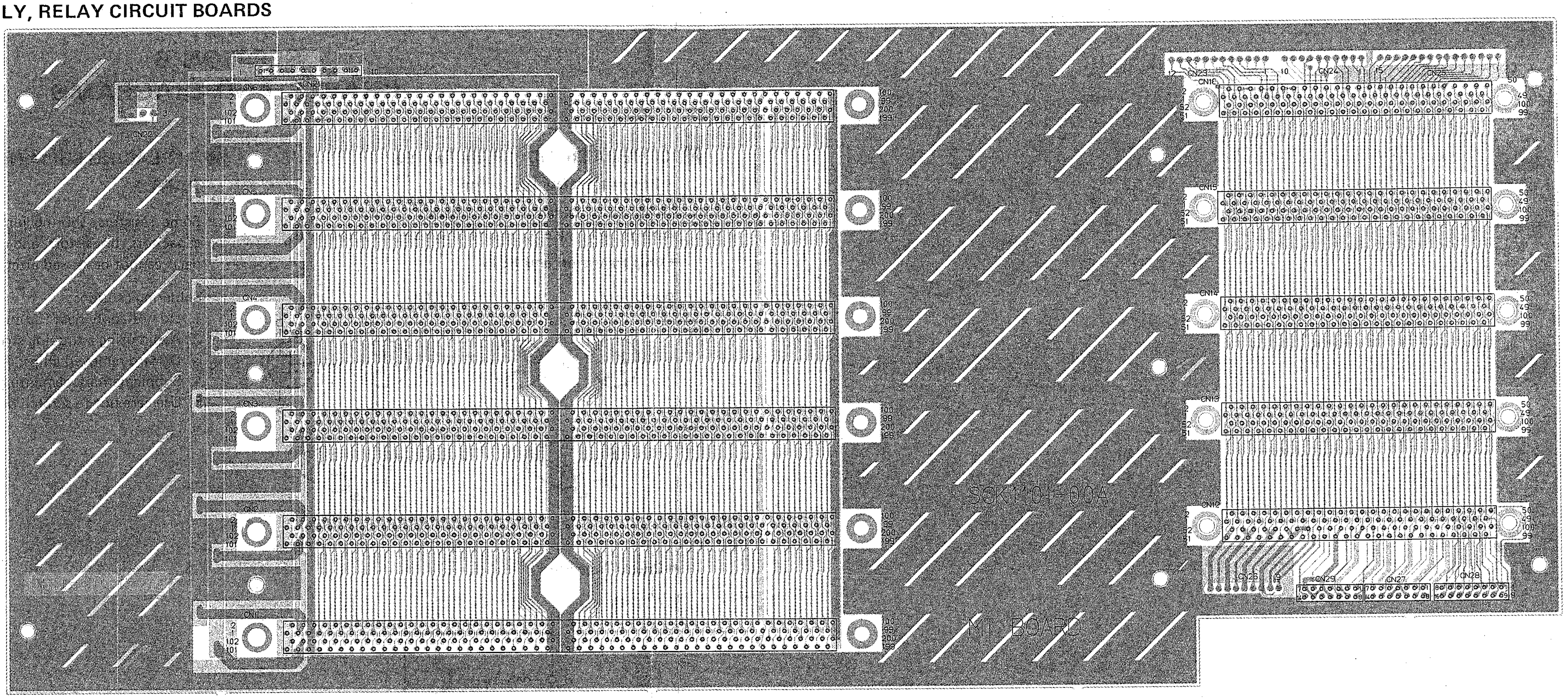


REPLACING SUBMINIATURE "CHIP" PARTS

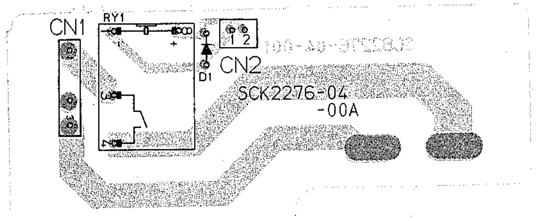
- Some resistors, shoring jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
- Soldering cautions:
  1) Do not apply heat for more than 3 seconds.
  2) Avoid using a rubbing stroke when soldering.
  3) Discard removed chips; do not reuse them.
  4) Supplementary cementing is not required.
  5) Use care not to scratch or otherwise damage the chips.

6.1 MT, BN, D-SUB, TALLY, RELAY CIRCUIT BOARDS

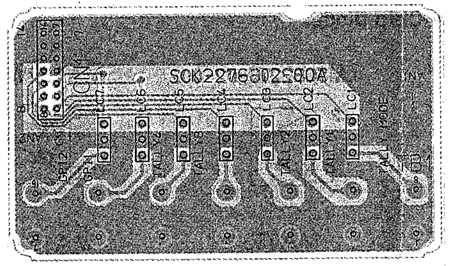
- **MT board**


SCK1101-00A
MT BOARD
CN16
CN23
CN24
CN25
CN29
CN27
CN28

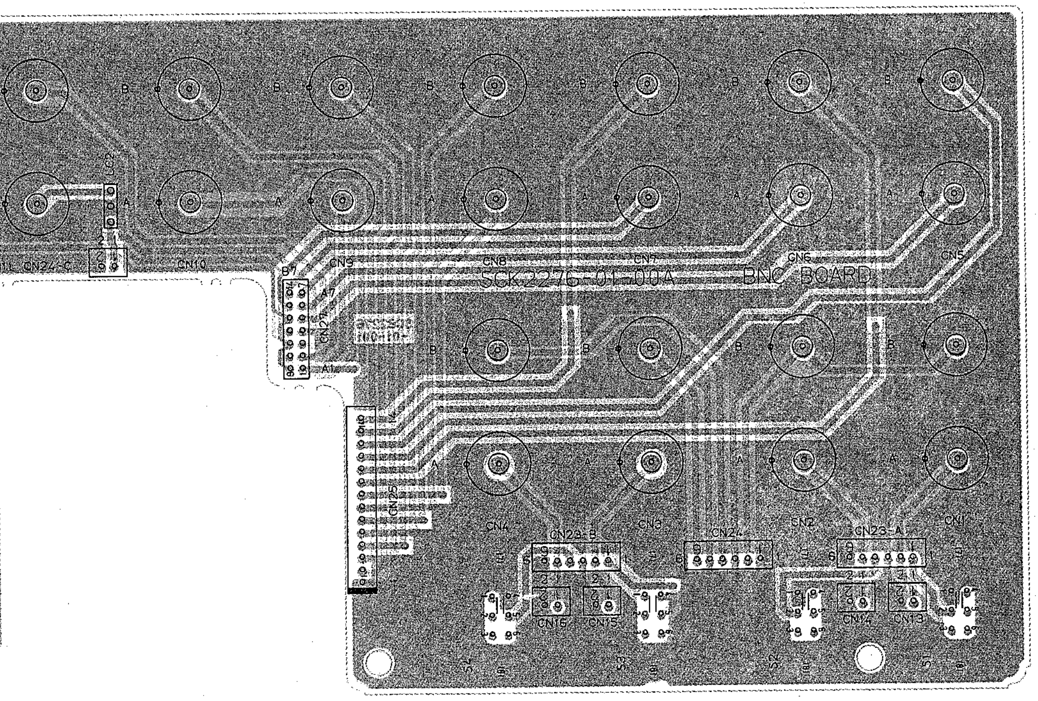
- **RELAY board**


CN1
RY1
CN2
D1
SCK2276-04
-00A

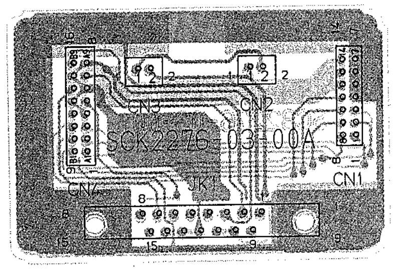
- **TALLY board**


SCK2276-02-00A

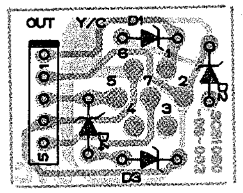
- **BNC board**


SCK2276-01-00A
BNC BOARD

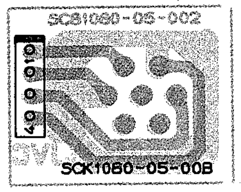
- **DSUB board**


SCK2276-03-00A
CN1
CN2
CN3

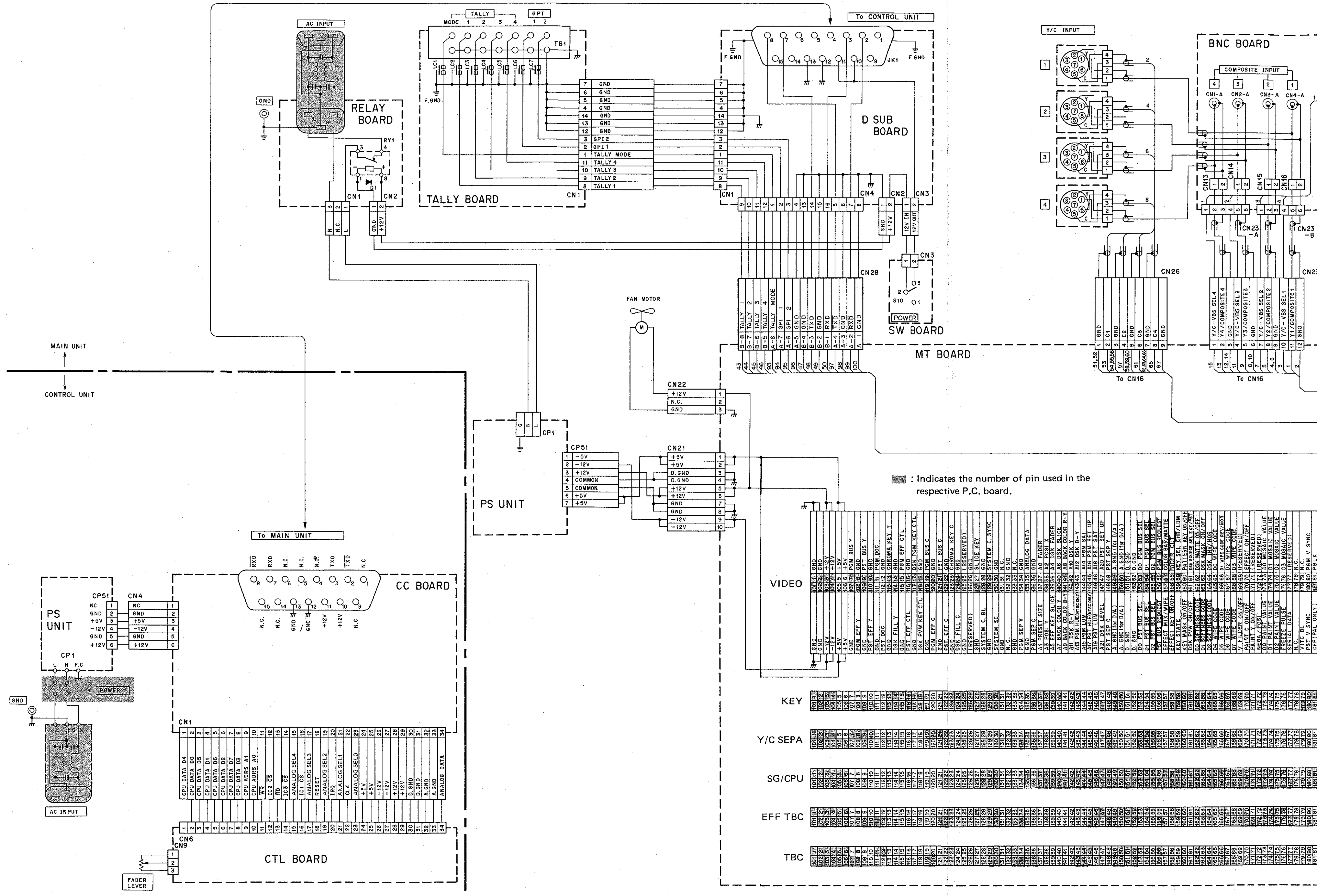
- **Y/C OUT board**


OUT
Y/C
D1
D2
D3

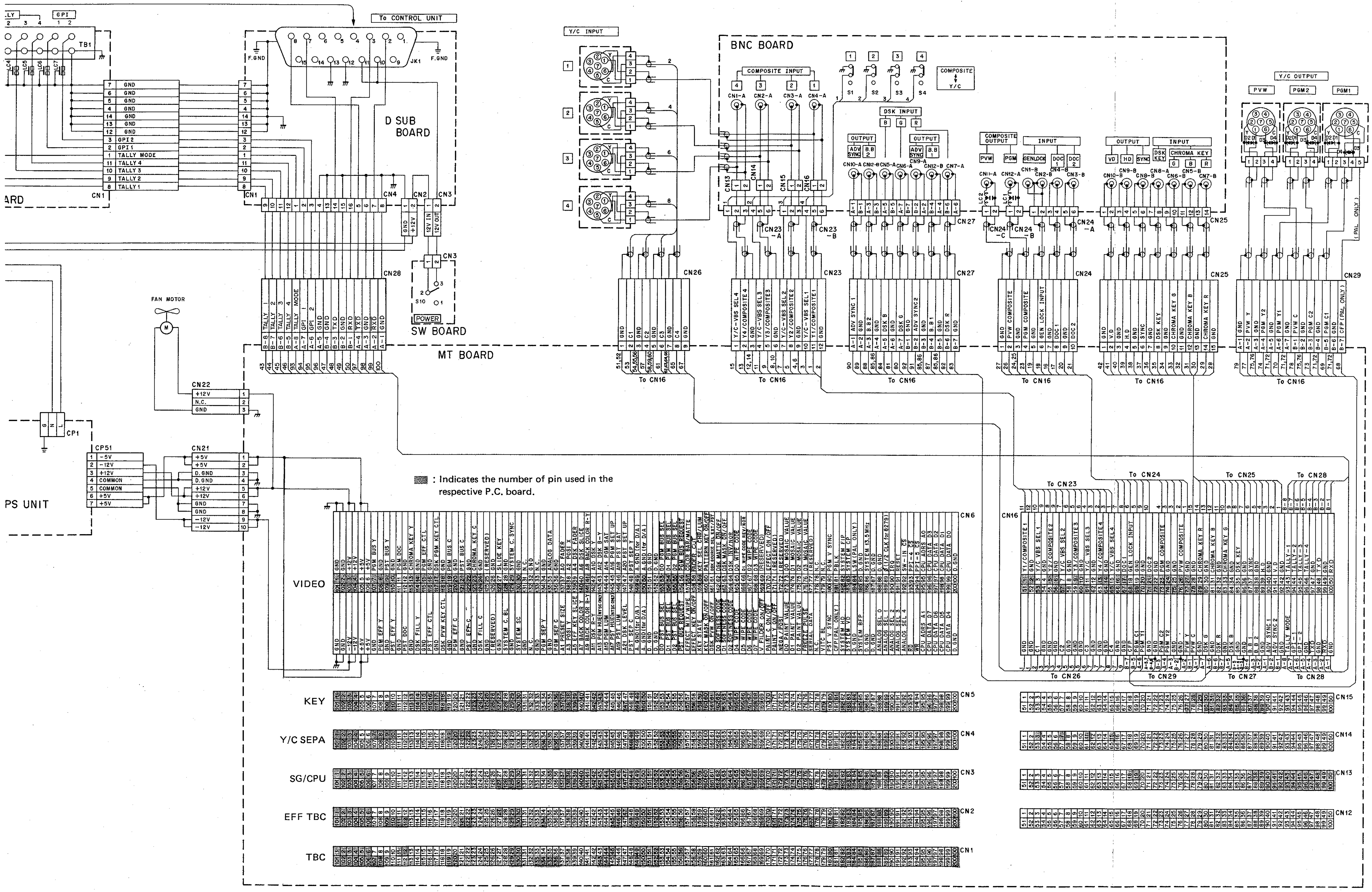
- **Y/C IN board**


SCB1080-05-002
SCK1080-05-00B

6.2 OVERALL WIRINGS

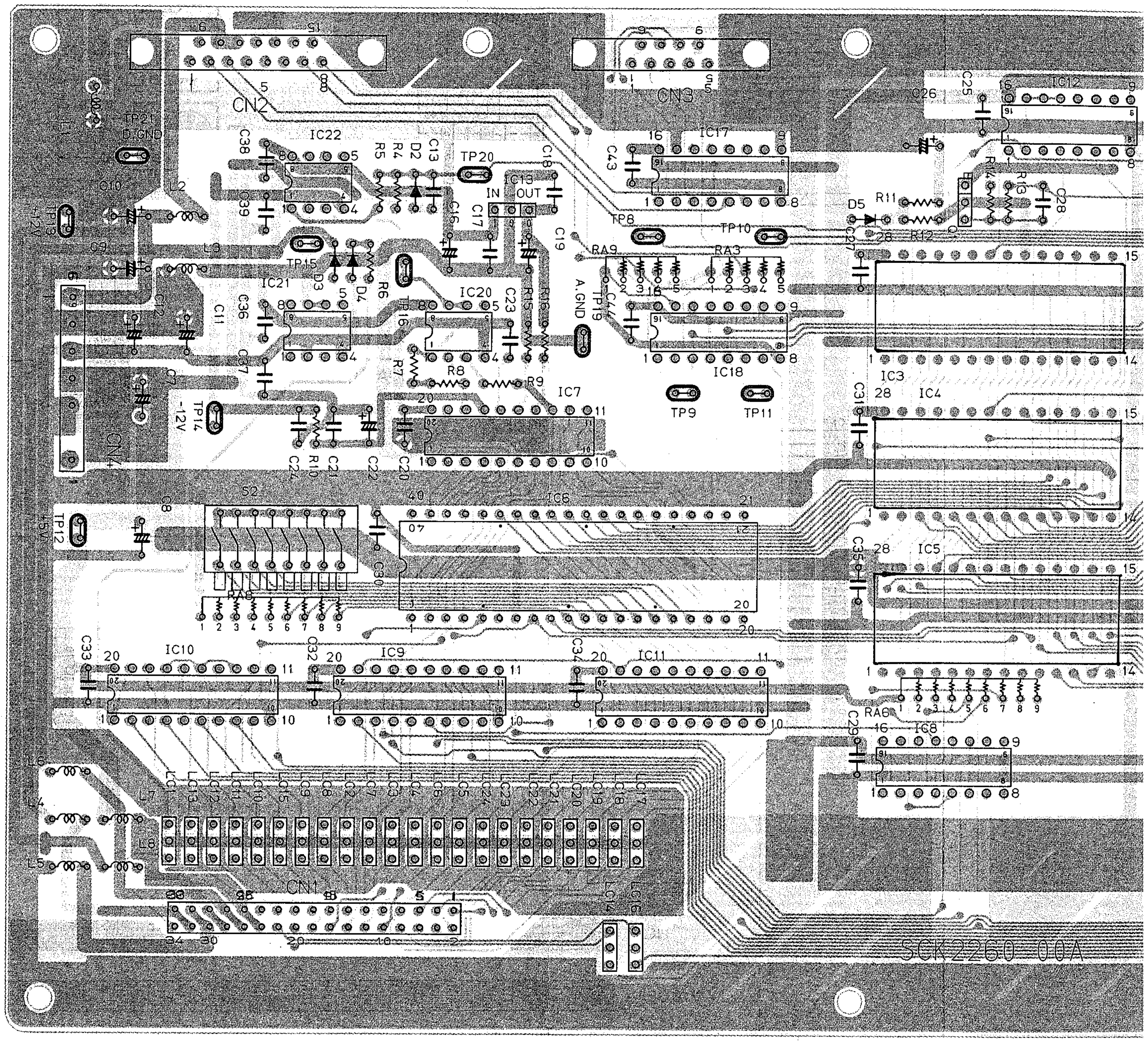

▨ : Indicates the number of pin used in the respective P.C. board.

AC INPUT
RELAY BOARD
GND
RY1
D1
CN1
CN2
N
N.C.
L
GND
+12V
TALLY
MODE 1 2 3 4
GPI
1 2
TB1
F.GND
TALLY BOARD
GND
GPI 2
GPI 1
TALLY MODE
TALLY 4
TALLY 3
TALLY 2
TALLY 1
To CONTROL UNIT
JK1
D SUB BOARD
CN3
CN4
12V IN
12V OUT
S10
POWER
SW BOARD
CN28
FAN MOTOR
M
MT BOARD
MAIN UNIT
CONTROL UNIT
CN22
CN21
PS UNIT
CP1
CP51
-5V
-12V
+12V
COMMON
+5V
D.GND
To MAIN UNIT
RXD
TXD
N.C.
CC BOARD
CN4
CN1
CTL BOARD
CN6
CN9
FADER LEVER
POWER
CPU DATA
CPU ADRS
ANALOG SEL
RESET
IRQ
CLK
A.GND
ANALOG DATA
Y/C INPUT
BNC BOARD
COMPOSITE INPUT
CN1-A
CN2-A
CN3-A
CN4-A
CN13
CN14
CN15
CN16
CN23 -A
CN23 -B
CN26
To CN16
Y/C-VBS SEL
COMPOSITE
VIDEO
KEY
Y/C SEPA
SG/CPU
EFF TBC
TBC


GPI
TB1
To CONTROL UNIT
JK1
F.GND
D SUB BOARD
CN1
CN2
CN3
CN4
CN28
SW BOARD
POWER
S10
FAN MOTOR
CN22
+12V
N.C.
GND
CP1
CP51
PS UNIT
CN21
MT BOARD
Y/C INPUT
BNC BOARD
COMPOSITE INPUT
DSK INPUT
OUTPUT
INPUT
COMPOSITE OUTPUT
COMPOSITE ↕ Y/C
Y/C OUTPUT
PVW
PGM2
PGM1
CN23
CN24
CN25
CN26
CN27
CN29
To CN16
CN16
To CN23
To CN24
To CN25
To CN28
To CN26
To CN29
To CN27
VIDEO
KEY
Y/C SEPA
SG/CPU
EFF TBC
TBC
CN6
CN5
CN4
CN3
CN2
CN1
CN15
CN14
CN13
CN12
(PAL ONLY)

▨ : Indicates the number of pin used in the respective P.C. board.

6.3 CC CIRCUIT BOARD



S1
CN2
CN3
CN4
CN1
IC22
IC17
IC12
IC21
IC20
IC18
IC7
IC3
IC4
IC5
IC6
IC8
IC9
IC10
IC11
IC13
IN
OUT
TP2
D.GND
TP13
+12V
TP14
-12V
TP12
+5V
TP15
TP16
TP19
A.GND
TP20
TP8
TP9
TP10
TP11
RA3
RA5
RA6
RA9
S2
D2
D3
D4
D5
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
L1
L2
L3
L4
L5
L6
L7
L8
C8
C9
C10
C11
C13
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
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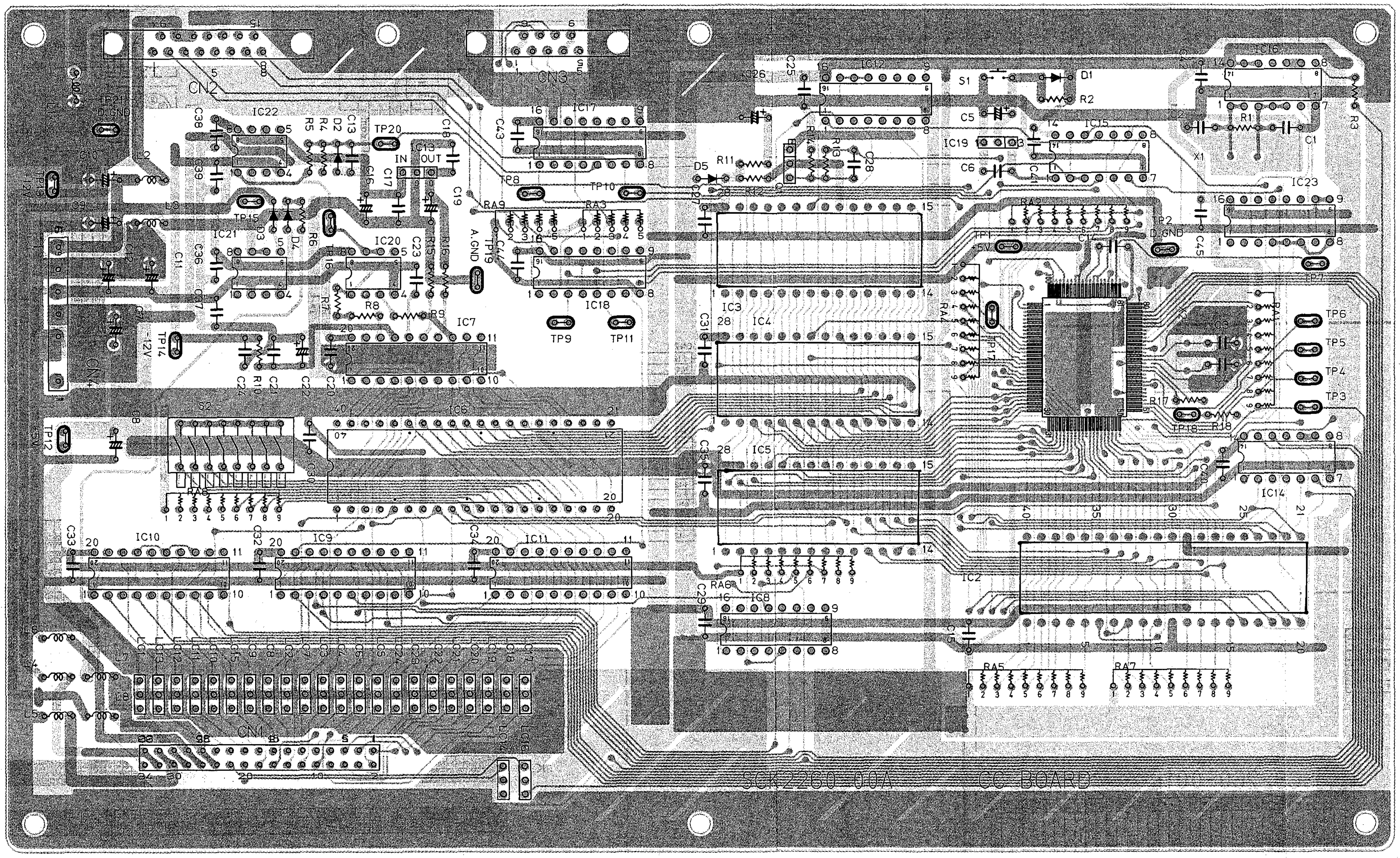
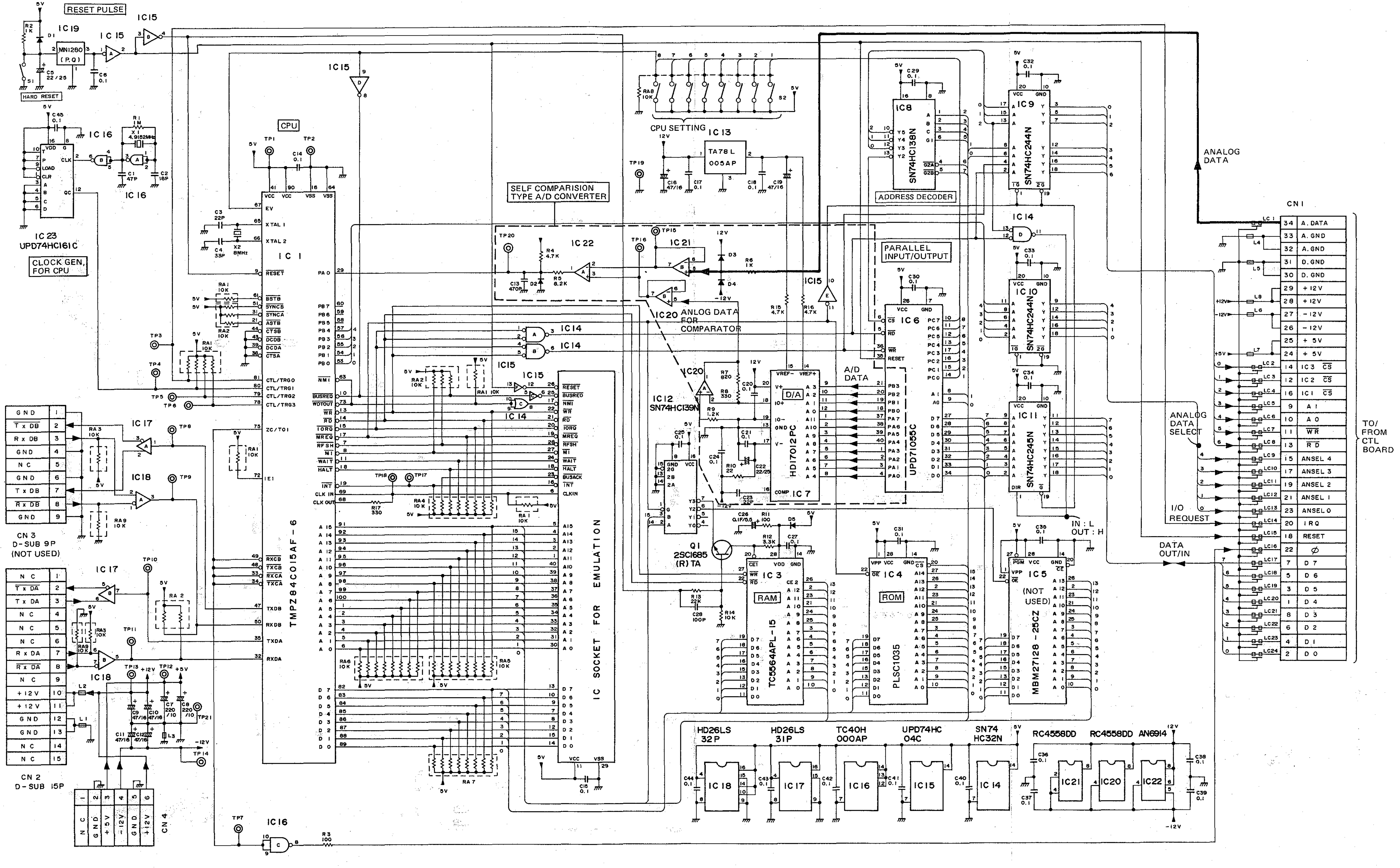
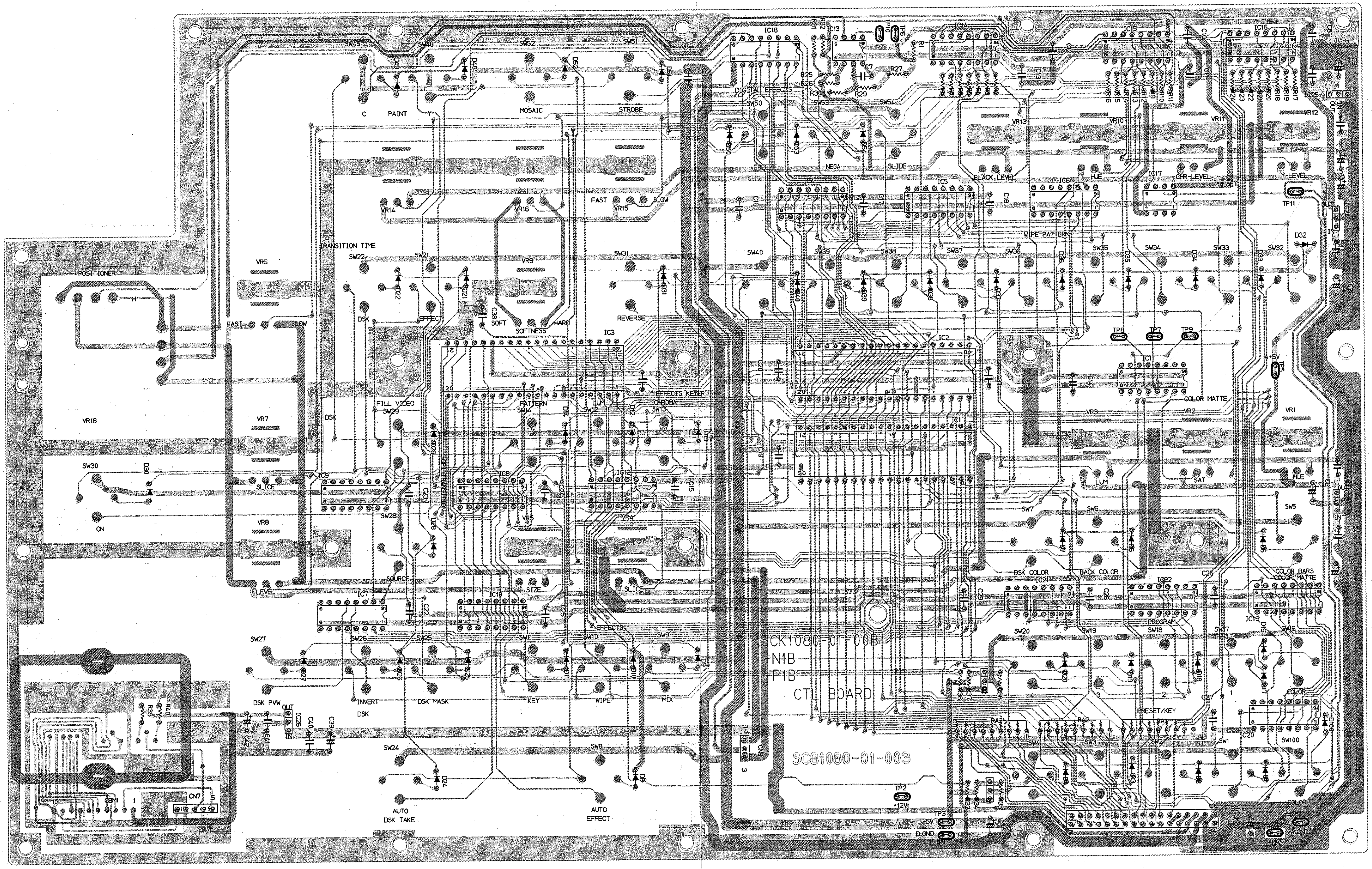
C43
C44
SCK2260-00A


SCK2260-00A
CC BOARD
CN1
CN2
CN3
CN4
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
IC23
S1
S2
X1
D.GND
A.GND
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP14
TP15
TP17
TP18
TP19
TP20
TP21
RA1
RA2
RA3
RA4
RA5
RA6
RA7
RA8
RA9

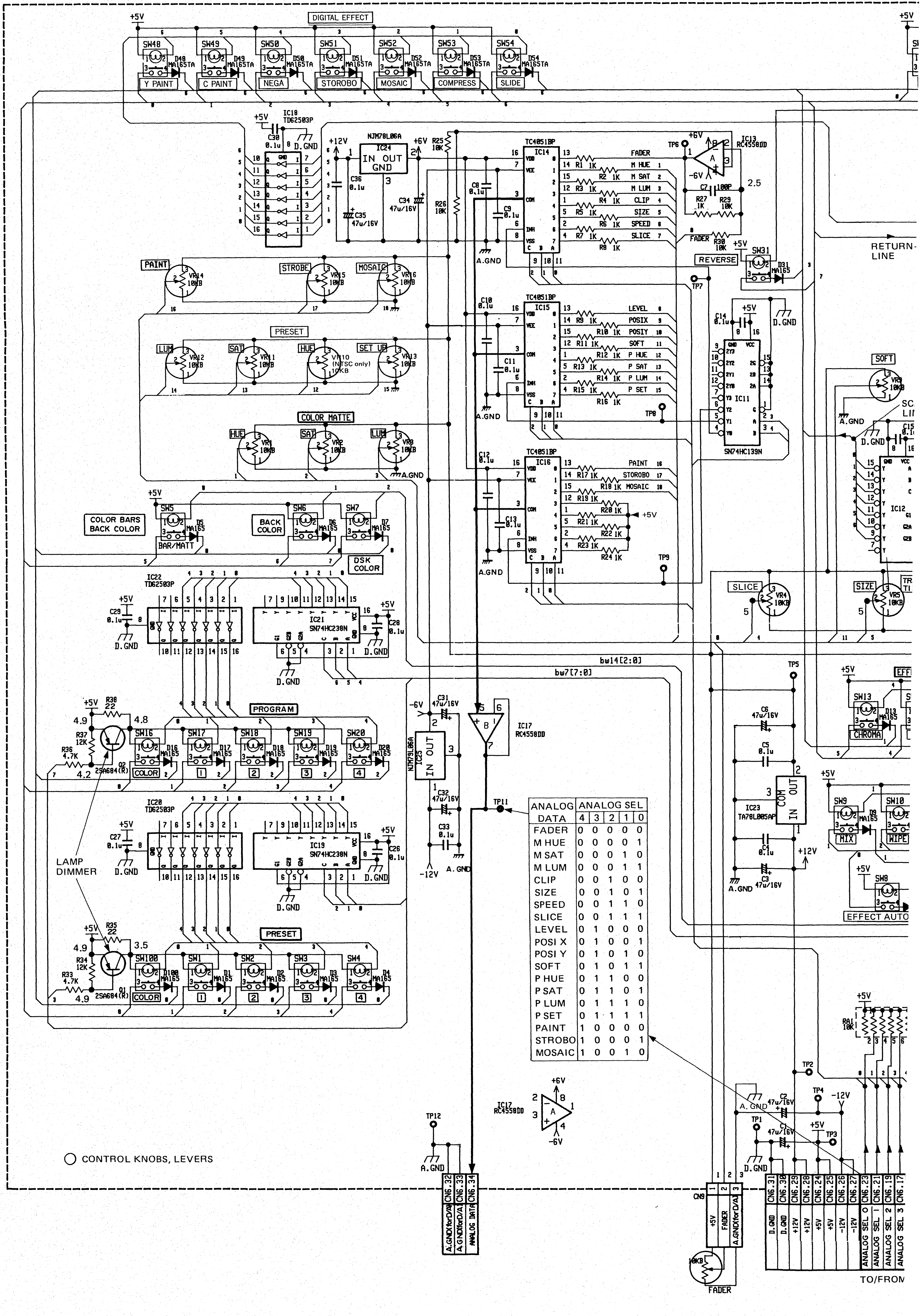
6.4 CC BOARD SCHEMATIC DIAGRAM 0 6


RESET PULSE
IC19 MN1280 (P.Q)
HARD RESET
IC15
IC16
X1 4.9152MHz
IC23 UPD74HC161C
CLOCK GEN. FOR CPU
CPU
TP1
TP2
IC1 TMPZ84C015AF-6
X2 8MHz
SELF COMPARISION TYPE A/D CONVERTER
IC22
IC21
IC20 ANALOG DATA FOR COMPARATOR
IC12 SN74HC139N
Q1 2SC1685 (R) TA
IC14
IC17
IC18
CPU SETTING
IC13 TA78L 005AP
IC8 SN74HC138N
ADDRESS DECODER
IC9 SN74HC244N
IC10 SN74HC244N
IC11 SN74HC245N
PARALLEL INPUT/OUTPUT
IC6 UPD71055C
IC7 HD17012PC
D/A
A/D DATA
IC3 RAM TC5564APL-15
IC4 ROM PLSC1035
IC5 (NOT USED) MBM27128-25CZ
IC SOCKET FOR EMULATION
ANALOG DATA
ANALOG DATA SELECT
I/O REQUEST
IN : L OUT : H
DATA OUT/IN
TO/FROM CTL BOARD
CN1
34 A. DATA
33 A. GND
32 A. GND
31 D. GND
30 D. GND
29 +12V
28 +12V
27 -12V
26 -12V
25 +5V
24 +5V
14 IC3 CS
12 IC2 CS
16 IC1 CS
9 A1
10 A0
11 WR
13 RD
15 ANSEL 4
17 ANSEL 3
19 ANSEL 2
21 ANSEL 1
23 ANSEL 0
20 IRQ
18 RESET
22 ∅
7 D7
5 D6
3 D5
1 D4
8 D3
6 D2
4 D1
2 D0
CN3 D-SUB 9P (NOT USED)
1 GND
2 TxDB
3 RxDB
4 GND
5 NC
6 GND
7 TxDB
8 RxDB
9 GND
CN2 D-SUB 15P
1 NC
2 TxDA
3 TxDA
4 NC
5 NC
6 NC
7 RxDA
8 RxDA
9 NC
10 +12V
11 +12V
12 GND
13 GND
14 NC
15 NC
CN4
NC
GND
+5V
-12V
GND
+12V
HD26LS 32P
HD26LS 31P
TC40H 000AP
UPD74HC 04C
SN74 HC32N
RC4558DD
RC4558DD
AN6914

6.5 CTL CIRCUIT BOARD

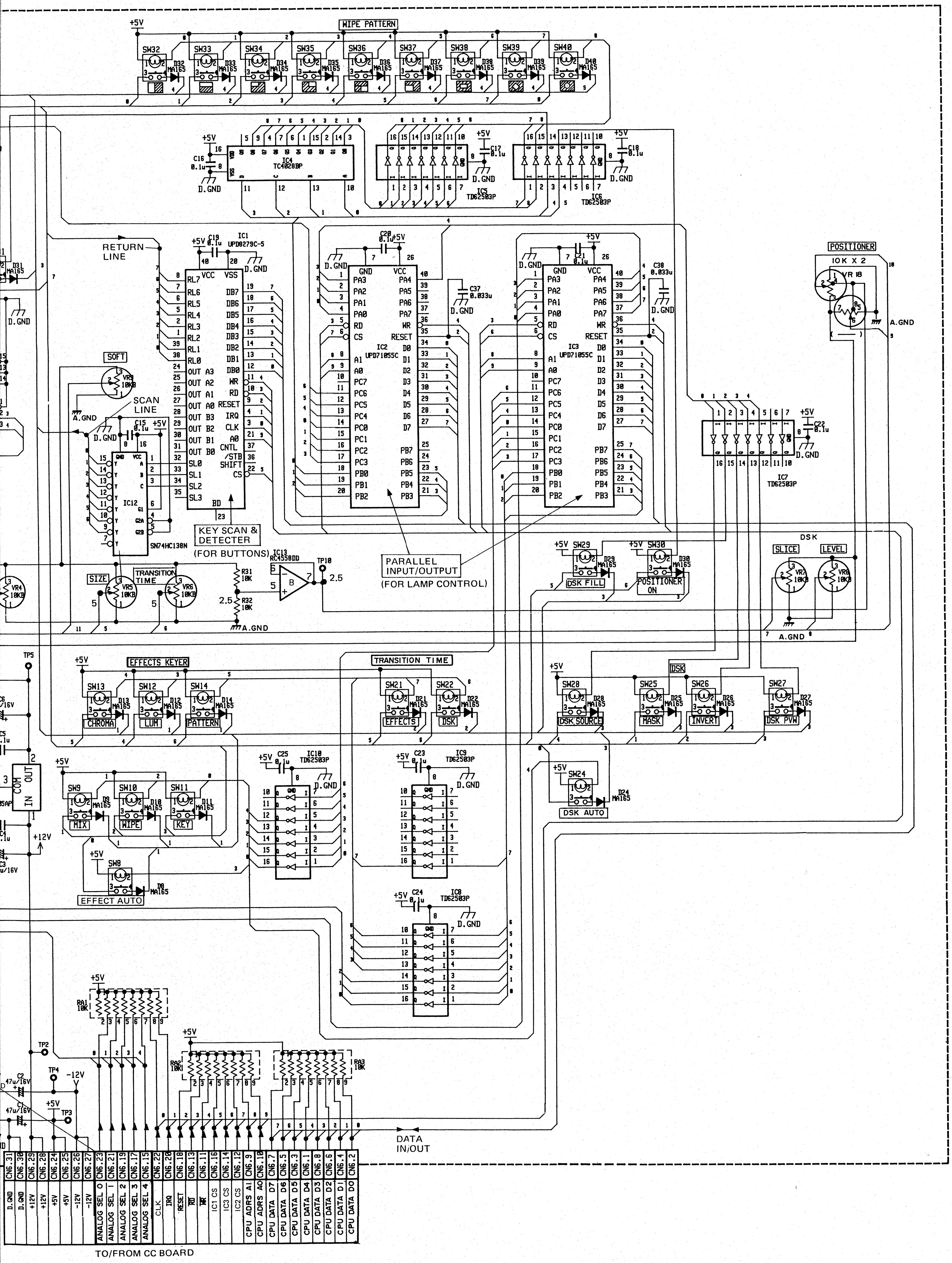

SW49
SW48
SW52
SW51
C
PAINT
Y
MOSAIC
STROBE
IC18
IC13
IC14
IC15
IC16
DIGITAL EFFECTS
SW50
SW53
SW54
FREEZE
NEGA
SLIDE
VR13
VR10
VR11
VR12
BLACK LEVEL
HUE
CHR-LEVEL
PRESET
Y-LEVEL
TP11
IC4
IC5
IC6
IC17
VR14
VR16
FAST
VR15
SLOW
TRANSITION TIME
SW22
SW21
VR6
VR9
SW31
SW40
SW39
SW38
SW37
SW36
SW35
SW34
SW33
SW32
WIPE PATTERN
POSITIONER
H
FAST
SLOW
DSK
EFFECT
SOFT
HARD
SOFTNESS
REVERSE
IC3
IC2
IC1
TP6
TP7
TP8
+5V
EFFECTS KEYER
CHROMA
LUM
PATTERN
FILL VIDEO
SW29
SW14
SW12
SW13
COLOR MATTE
VR18
VR7
VR3
VR2
VR1
SW30
SLICE
ON
IC9
IC8
IC12
VR8
SW28
VR5
VR4
LUM
SAT
SW7
SW6
SW5
SOURCE
SIZE
SLICE
LEVEL
DSK COLOR
BACK COLOR
COLOR BARS
COLOR MATTE
IC7
IC10
IC21
IC22
IC19
PROGRAM
SW27
SW26
SW25
SW11
EFFECTS
SW10
SW9
SW20
SW19
SW18
SW17
SW16
SCK1080-01-00B
N1B
P1B
CTL BOARD
INVERT
DSK
DSK MASK
KEY
WIPE
MIX
DSK PVW
PRESET/KEY
COLOR
SW24
SW8
SW4
SW3
SW2
SW1
SW100
SC81080-01-003
CN7
CN1
AUTO
DSK TAKE
AUTO
EFFECT
TP2
+12V
TP3
+5V
D.GND

6.6 CTL BOARD SCHEMATIC DIAGRAM [0] [7]


DIGITAL EFFECT
Y PAINT
C PAINT
NEGA
STOROBO
MOSAIC
COMPRESS
SLIDE
IC18 TD62503P
IC24 NJM78L06A
IC14 TC4051BP
IC15 TC4051BP
IC16 TC4051BP
IC13 RC4558DD
IC11 SN74HC139N
IC12
REVERSE
RETURN-LINE
PAINT
STROBE
MOSAIC
PRESET
LUM
SAT
HUE
SET UP
VR10 (NTSC only) 10KB
COLOR MATTE
COLOR BARS BACK COLOR
BAR/MATT
BACK COLOR
DSK COLOR
IC22 TD62503P
IC21 SN74HC238N
PROGRAM
COLOR
IC20 TD62503P
IC19 SN74HC238N
PRESET
LAMP DIMMER
IC25 NJM79L06A
IC17 RC4558DD
IC23 TA78L005AP
SLICE
SIZE
SOFT
CHROMA
MIX
WIPE
EFFECT AUTO
bw14[2:0]
bw7[7:0]
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP11
TP12
A.GND
D.GND
CN6.32 A.GND(for D/A)
CN6.33 A.GND(for D/A)
CN6.34 ANALOG DATA
CN9 +5V FADER A.GND(for D/A)
FADER
CN6.31 D.GND
CN6.30 D.GND
CN6.29 +12V
CN6.28 +12V
CN6.24 +5V
CN6.25 +5V
CN6.26 -12V
CN6.27 -12V
CN6.23 ANALOG SEL 0
CN6.21 ANALOG SEL 1
CN6.19 ANALOG SEL 2
CN6.17 ANALOG SEL 3
TO/FROM

ANALOG DATA	ANALOG SEL 4	3	2	1	0
FADER	0	0	0	0	0
M HUE	0	0	0	0	1
M SAT	0	0	0	1	0
M LUM	0	0	0	1	1
CLIP	0	0	1	0	0
SIZE	0	0	1	0	1
SPEED	0	0	1	1	0
SLICE	0	0	1	1	1
LEVEL	0	1	0	0	0
POSI X	0	1	0	0	1
POSI Y	0	1	0	1	0
SOFT	0	1	0	1	1
P HUE	0	1	1	0	0
P SAT	0	1	1	0	1
P LUM	0	1	1	1	0
P SET	0	1	1	1	1
PAINT	1	0	0	0	0
STROBO	1	0	0	0	1
MOSAIC	1	0	0	1	0

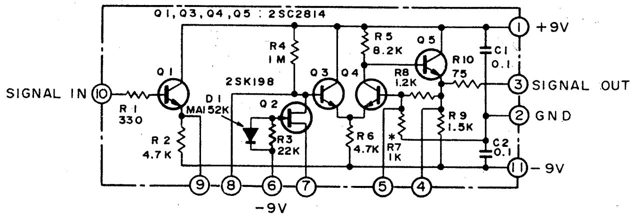
○ CONTROL KNOBS, LEVERS


WIPE PATTERN
SW32 SW33 SW34 SW35 SW36 SW37 SW38 SW39 SW40
D32 D33 D34 D35 D36 D37 D38 D39 D40 MA165
IC4 TC4028BP
IC5 TD62503P
IC6 TD62503P
C16 0.1u
C17 0.1u
C18 0.1u
+5V
D.GND
RETURN LINE
IC1 UPD8279C-5
C19 0.1u
SOFT
VR3 10KB
SCAN LINE
A.GND
C15 0.1u
IC12 SN74HC138N
KEY SCAN & DETECTER (FOR BUTTONS)
IC2 UPD71055C
IC3 UPD71055C
C20 0.1u
C21 0.1u
C37 0.033u
C38 0.033u
PARALLEL INPUT/OUTPUT (FOR LAMP CONTROL)
POSITIONER
10K X 2
VR10
IC7 TD62503P
C22 0.1u
DSK
SLICE
LEVEL
VR7 10KB
VR8 10KB
SW29 D29 MA165 DSK FILL
SW30 D30 MA165 POSITIONER ON
IC13 RC4558DD
TP10
2.5
R31 10K
R32 10K
SIZE
TRANSITION TIME
VR4 10KB
VR5 10KB
VR6 10KB
TP5
EFFECTS KEYER
SW13 D13 MA165 CHROMA
SW12 D12 MA165 LUM
SW14 D14 MA165 PATTERN
SW9 D9 MA165 MIX
SW10 D10 MA165 WIPE
SW11 D11 MA165 KEY
SW8 D8 MA165 EFFECT AUTO
COM IN OUT
+12V
TRANSITION TIME
SW21 D21 MA165 EFFECTS
SW22 D22 MA165 DSK
SW28 D28 MA165 DSK SOURCE
SW25 D25 MA165 MASK
SW26 D26 MA165 INVERT
SW27 D27 MA165 DSK PVW
SW24 D24 MA165 DSK AUTO
C25 0.1u IC10 TD62503P
C23 0.1u IC9 TD62503P
C24 0.1u IC8 TD62503P
RA1 10K
RA2 10K
RA3 10K
TP2
TP4
TP3
-12V
C2 47u/16V
C1 47u/16V
DATA IN/OUT
TO/FROM CC BOARD

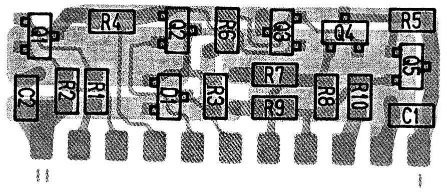
CN6.31 D.GND
CN6.30 D.GND
CN6.29 +12V
CN6.28 +12V
CN6.24 +5V
CN6.25 +5V
CN6.26 -12V
CN6.27 -12V
CN6.23 ANALOG SEL 0
CN6.21 ANALOG SEL 1
CN6.19 ANALOG SEL 2
CN6.17 ANALOG SEL 3
CN6.15 ANALOG SEL 4
CN6.22 CLK
CN6.20 IRQ
CN6.18 RESET
CN6.13 RD
CN6.11 WR
CN6.16 IC1 CS
CN6.14 IC3 CS
CN6.12 IC2 CS
CN6.9 CPU ADRS A1
CN6.10 CPU ADRS A0
CN6.7 CPU DATA D7
CN6.5 CPU DATA D6
CN6.3 CPU DATA D5
CN6.1 CPU DATA D4
CN6.8 CPU DATA D3
CN6.6 CPU DATA D2
CN6.4 CPU DATA D1
CN6.2 CPU DATA D0

6.7 CBMs ON THE VIDEO BOARD

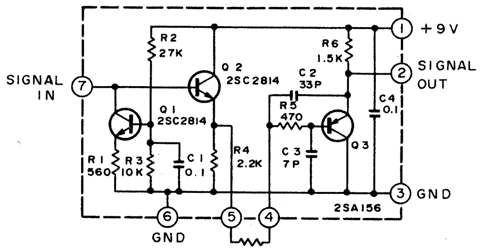
● VIDEO AMP-A CBM (CBMC4498-00A) (CBMC25, 29)
VIDEO AMP CBM (CBMC4489-00A) (CBM23, 24, 27, 28)

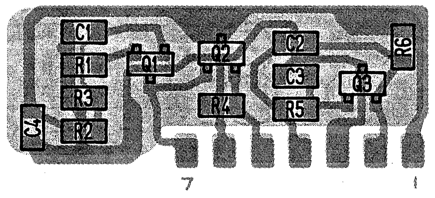

Q1, Q3, Q4, Q5 : 2SC2814
SIGNAL IN
10
R1
330
Q1
R2
4.7K
D1
MA152K
2SK198
Q2
R3
22K
R4
1M
Q3
Q4
R5
8.2K
Q5
R6
4.7K
*
R7
1K
R8
1.2K
R9
1.5K
R10
75
C1
0.1
C2
0.1
1
+9V
3
SIGNAL OUT
2
GND
11
-9V
9
8
6
7
5
4
-9V

*R7 : VIDEO AMP-A only

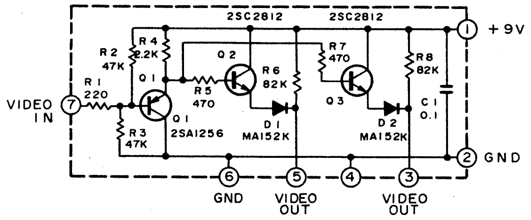

Q1
R4
Q2
R6
Q3
Q4
R5
C2
R2
R1
D1
R3
R7
R9
R8
R10
Q5
C1
11
1

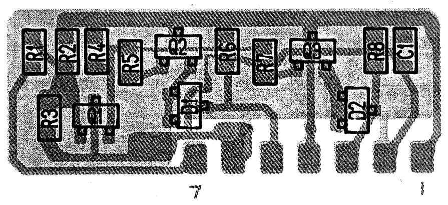
● BUFFER CBM (CBMC4491-00A) (CBM11, 12, 13, 14)


SIGNAL
IN
7
R2
27K
Q2
2SC2814
Q1
2SC2814
R1
560
R3
10K
C1
0.1
R4
2.2K
C2
33P
R5
470
C3
7P
Q3
R6
1.5K
C4
0.1
1
+9V
2
SIGNAL
OUT
3
GND
2SA156
6
GND
5
4

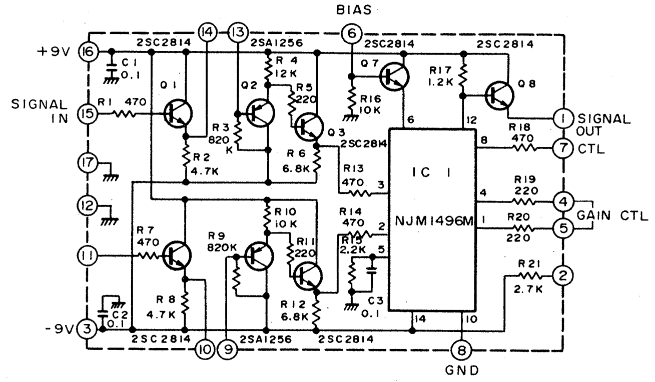

C1
R1
R3
Q1
Q2
C2
R6
C3
Q3
C4
R2
R4
R5
7
1

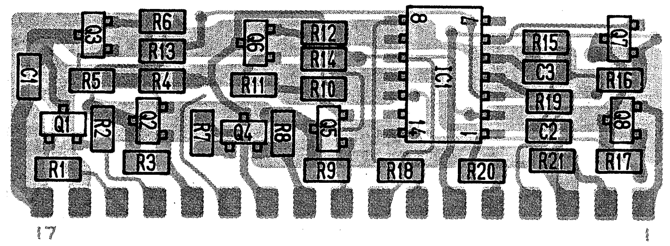
● CROSS POINT CBM (CBMC4490-00A) (CBM1∼10)


2SC2812
2SC2812
VIDEO
IN
7
R1
220
R2
47K
R3
47K
R4
2.2K
Q1
Q1
2SA1256
Q2
R5
470
R6
82K
D1
MA152K
R7
470
Q3
D2
MA152K
R8
82K
C1
0.1
1
+9V
2
GND
6
GND
5
VIDEO
OUT
4
3
VIDEO
OUT


R1
R2
R4
R5
Q2
R6
R7
Q3
R8
C1
R3
Q1
D1
D2
7
1

● MULTI CBM (CBMC4492-00A) (CBM15∼22)

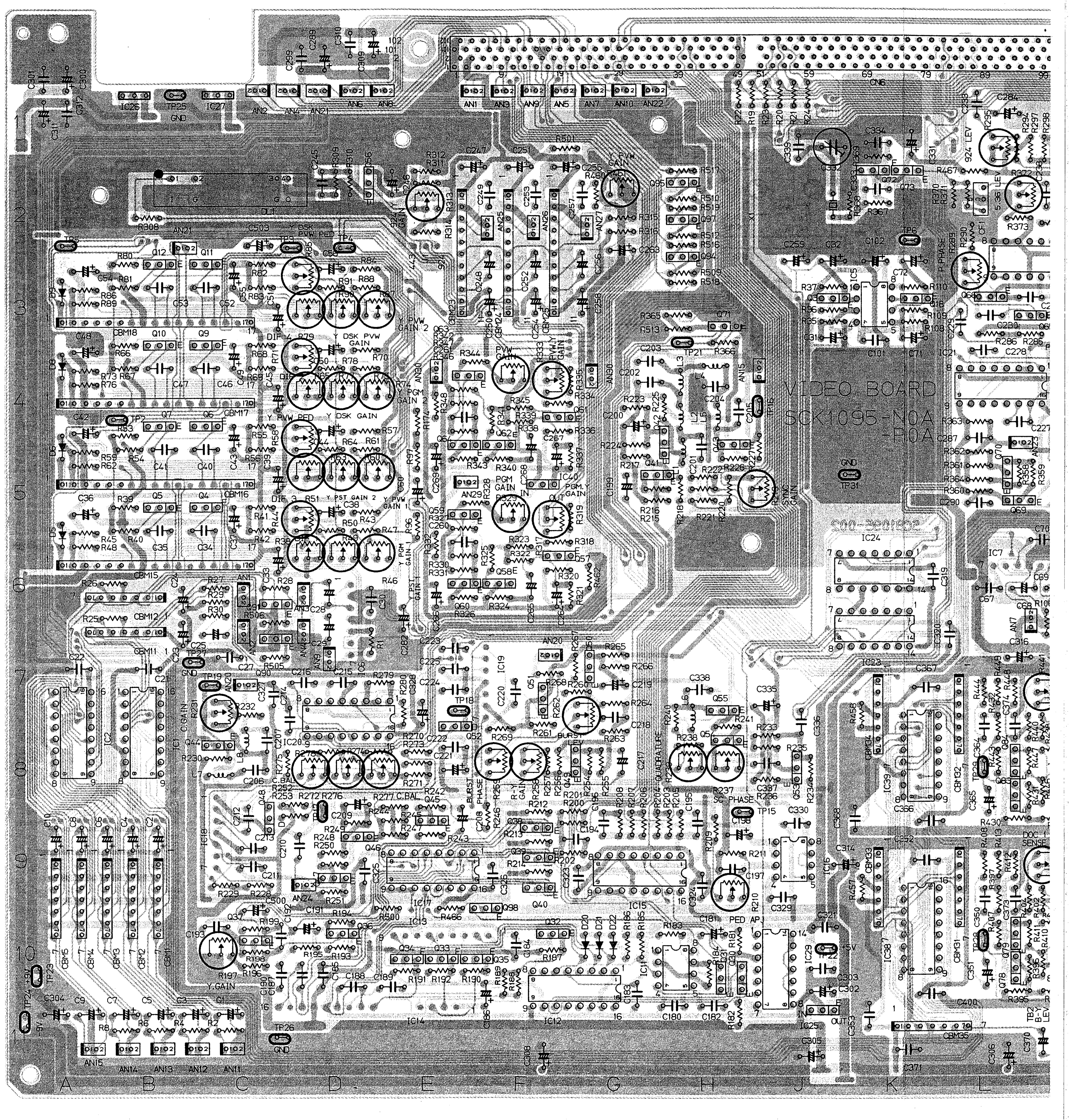

BIAS
+9V
16
C1
0.1
2SC2814
14
13
2SA1256
6
2SC2814
2SC2814
SIGNAL
IN
15
R1 470
Q1
R2
4.7K
R3
820
K
Q2
R4
12K
R5
220
Q3
2SC2814
R6
6.8K
Q7
R16
10K
R17
1.2K
Q8
17
12
R7
470
R8
4.7K
R9
820K
R10
10K
R11
220
R12
6.8K
11
R13
470
R14
470
R15
2.2K
C3
0.1
IC 1
NJM1496M
6
12
8
3
4
2
1
5
14
10
C2
0.1
-9V
3
2SC2814
10
9
2SA1256
2SC2814
8
GND
1
SIGNAL
OUT
R18
470
7
CTL
R19
220
4
R20
220
5
GAIN CTL
R21
2.7K
2


Q3
R6
R13
C1
R5
R4
Q6
R12
R14
R11
R10
IC1
8
7
14
1
R15
C3
Q7
R16
R19
C2
Q8
Q1
R2
Q2
R7
Q4
R8
Q5
R1
R3
R9
R18
R20
R21
R17
17
1

6.8 VIDEO CIRCUIT BOARD

- **Parts Location Table of VIDEO board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

AN1	0E	C40	4B	C224	7E	C336	7J	IC12	10G	Q73	1K	R96	5D	R214	9F	R314	2E	R425	8N
AN1	6C	C41	4B	C225	7E	C337	8H	IC13	10E	Q75	9N	R97	4D	R215	5G	R315	2G	R426	8N
AN2	0C	C42	4A	C226	5M	C338	7H	IC14	10E	Q76	9N	R98	6R	R216	5G	R316	2G	R427	8M
AN2	6C	C43	4B	C227	4L	C339	1J	IC15	9G	Q77	10N	R99	6P	R217	4G	R317	5F	R428	8M
AN3	0E	C44	4D	C228	3L	C340	10P	IC16	9H	Q78	10L	R100	6P	R218	5G	R318	5F	R429	8L
AN3	6C	C45	4C	C229	3K	C341	9P	IC17	9E	Q79	10L	R101	6N	R219	5H	R319	5F	R430	8L
AN4	6C	C46	3B	C230	3L	C342	10N	IC18	8B	Q80	7N	R106	6L	R220	5H	R320	6F	R431	8L
AN4	0C	C47	3B	C231	3L	C343	9N	IC19	6E	Q81	7N	R107	6P	R221	5H	R321	6F	R432	7L
AN5	6N	C48	3A	C232	1M	C344	9N	IC20	7D	Q82	8N	R108	3K	R222	5H	R322	5F	R435	7M
AN5	0F	C49	3B	C233	0K	C345	9N	IC21	3L	Q83	8L	R109	3K	R223	4G	R323	5F	R436	7M
AN6	6M	C50	3D	C234	1L	C346	10N	IC22	2M	Q84	8L	R110	3K	R224	4G	R324	6E	R438	7L
AN6	0D	C51	3C	C235	1N	C347	10M	IC23	1N	Q85	11M	R111	6N	R225	4G	R325	5E	R439	8M
AN7	6L	C52	3B	C236	2M	C348	10M	IC24	5K	Q86	11M	R112	5R	R226	4H	R326	6E	R440	7L
AN7	0F	C53	3B	C237	2M	C349	9L	IC25	10J	Q90	6C	R113	5R	R227	4H	R327	5E	R441	7L
AN8	6M	C54	2A	C238	1L	C350	9L	IC26	0A	Q91	6C	R114	5N	R228	9C	R328	5E	R442	8M
AN8	0D	C55	3B	C239	1L	C351	10L	IC27	0B	Q92	6P	R115	5N	R229	9C	R329	5E	R443	8L
AN9	0F	C56	2D	C240	2N	C352	9K	IC28	6K	Q93	6M	R116	5M	R230	8B	R330	5E	R444	7L
AN9	6D	C60	5D	C241	2N	C353	10J	IC29	10H	Q94	2G	R117	5N	R231	7B	R331	6E	R445	8L
AN10	6M	C61	7S	C242	1N	C354	8P	IC32	9N	Q95	1G	R118	6R	R232	7C	R332	5E	R446	8L
AN10	0G	C62	7R	C243	2N	C355	7P	IC33	7N	Q97	2G	R119	6M	R233	7H	R333	3F	R447	8L
AN11	11B	C63	7P	C244	1N	C356	8N	IC34	9M	Q98	9E	R120	5M	R234	8J	R334	4F	R448	7L
AN12	11B	C64	6P	C245	1C	C357	7N	IC35	10M	R1	6D	R121	6R	R235	8H	R335	3F	R449	7L
AN13	11B	C65	6M	C246	2D	C358	7N	IC36	7M	R2	11C	R122	6M	R236	8H	R336	4F	R450	10M
AN14	11A	C67	6L	C247	1E	C359	7N	IC37	8M	R4	11B	R123	5N	R237	8H	R337	4F	R451	10M
AN15	4H	C68	6L	C248	2E	C360	8N	IC38	9K	R5	4M	R124	5N	R238	7H	R338	4F	R452	10M
AN15	11A	C69	6L	C249	1E	C361	8M	IC39	7K	R6	11B	R126	4R	R239	8G	R339	4F	R453	10M
AN16	11R	C70	5L	C250	3E	C362	8M	IC40	5F	R7	3M	R127	4R	R240	7G	R340	4E	R454	11M
AN17	11R	C71	3K	C251	1F	C363	7L	J1	2E	R8	11A	R128	4N	R241	7H	R341	4E	R455	11M
AN18	11P	C72	2K	C252	2F	C364	7L	J2	1N	R9	3M	R129	4N	R242	8E	R342	4E	R457	9J
AN19	11P	C73	6N	C253	1F	C365	8L	L1	4G	R10	11R	R130	4M	R243	8E	R343	4E	R458	7J
AN20	11P	C74	5P	C254	3F	C366	8K	L2	4G	R12	11R	R131	4N	R244	8D	R344	3E	R460	1F
AN20	7F	C75	5R	C255	1F	C367	7K	L3	3G	R14	11R	R132	5R	R245	8D	R345	4E	R461	2G
AN20	7C	C76	5R	C256	2F	C368	8J	L4	3H	R16	11P	R133	5M	R246	8E	R346	4E	R462	6F
AN21	0C	C77	5P	C257	1F	C369	11N	L5	4H	R19	0H	R134	5M	R247	8D	R347	4E	R464	0S
AN21	2B	C78	5N	C258	3F	C370	11L	L6	7G	R20	0H	R135	5R	R248	9D	R348	4E	R465	1S
AN22	2P	C79	5N	C259	2J	C371	11K	L7	8B	R21	0J	R136	5M	R249	8D	R349	1P	R466	9E
AN22	0G	C80	5P	C260	5E	C372	9L	L8	7C	R22	0H	R137	5N	R250	9D	R350	0P	R467	1L
AN23	1U	C81	5R	C261	4E	C373	9L	L9	2N	R23	0H	R138	4N	R251	9D	R351	1R	R500	9D
AN23	4L	C82	5R	C263	2G	C374	7L	L10	1N	R24	0J	R139	3R	R252	8C	R352	0R	R501	1F
AN24	11N	C83	5P	C264	6F	C375	7L	Q3	3J	R25	6A	R140	4R	R253	8C	R353	1R	R502	0R
AN24	9C	C84	4N	C265	6F	C400	10K	Q4	5B	R26	6A	R141	3N	R254	8F	R354	1S	R505	7C
AN25	2E	C85	4N	C266	6E	C500	9C	Q5	5B	R27	6B	R142	4N	R255	8F	R357	5M	R506	6C
AN26	2F	C86	4P	C267	4F	C501	5M	Q6	4B	R28	6C	R143	3M	R256	8F	R358	4L	R507	6N
AN27	2F	C87	4R	C268	4F	C503	2C	Q7	4B	R29	6B	R144	3N	R257	8F	R359	4L	R508	6L
AN29	5E	C88	4R	C269	4E	CBM1	9B	Q9	3B	R30	6B	R145	4R	R258	8F	R360	5L	R509	2G
AN30	2R	C89	4P	C270	0P	CBM2	9A	Q10	3B	R35	3J	R146	4M	R259	8E	R361	4L	R510	2G
AN30	3F	C90	3N	C271	1P	CBM3	9A	Q11	2B	R36	3J	R147	4M	R260	7F	R362	4L	R512	2G
AN30	4E	C91	3N	C272	0P	CBM4	9A	Q12	2B	R37	3J	R148	4R	R261	7F	R363	4L	R513	3G
AN31	1P	C92	3P	C273	1P	CBM5	9A	Q18	3K	R38	5C	R149	4M	R262	7F	R364	5L	R516	2G
AN32	1R	C93	3R	C274	0P	CBM6	9S	Q19	5P	R39	5A	R150	4N	R263	7G	R365	3G	R517	1G
AN33	1R	C94	3R	C275	1R	CBM7	9R	Q20	5R	R40	5A	R151	3N	R264	7G	R366	3H	R518	2G
AN35	9P	C95	3P	C276	0R	CBM8	9R	Q21	4P	R41	5C	R153	3R	R265	7G	R367	2K	R519	2G
AN36	7P	C96	3N	C277	1R	CBM9	9R	Q22	4R	R42	5C	R154	3R	R266	7G	R368	2J	TP2	4A
AN40	1S	C100	2P	C278	0R	CBM10	9R	Q23	3P	R43	5D	R155	3N	R267	7F	R369	1K	TP3	2C
AN41	1S	C101	3K	C279	1R	CBM11	6B	Q24	3R	R44	5C	R156	3N	R268	7F	R370	1K	TP4	2D
AN42	1T	C102	2K	C280	0R	CBM12	6B	Q25	3P	R45	5A	R157	3M	R269	7E	R371	1K	TP5	2A
AN43	1T	C180	10G	C281	1R	CBM13	7R	Q26	3R	R46	5D	R158	3N	R270	8E	R372	1L	TP6	2K
AN44	1T	C181	10H	C282	6D	CBM14	6R	Q30	10H	R47	5D	R159	3R	R271	8E	R373	2L	TP7	4R
AN45	1U	C182	10H	C283	2N	CBM15	6A	Q31	10H	R48	5A	R160	3M	R272	8C	R380	10P	TP8	3R
AN46	1U	C183	10G	C284	1L	CBM16	5A	Q32	10F	R49	5D	R161	3M	R273	8E	R381	9P	TP9	1S
AN47	1U	C184	10F	C287	4L	CBM17	4A	Q33	10E	R50	5D	R162	3R	R274	8D	R382	9P	TP10	2S
AN48	1U	C185	10C	C289	0C	CBM18	3A	Q34	10D	R51	5C	R163	3M	R275	8C	R383	10P	TP15	8H
C1	10C	C186	10E	C290	5L	CBM19	6S	Q35	10E	R53	4A	R164	3N	R276	8D	R384	9P	TP16	4H
C2	9B	C187	10C	C299	0C	CBM20	5S	Q36	10D	R54	4A	R165	2P	R277	8D	R385	10N	TP17	8C
C3	10B	C188	10D	C300	0A	CBM21	4S	Q37	10C	R55	4C	R166	2P	R278	8D	R386	9N	TP18	7E
C4	9A	C189	10D	C301	0A	CBM22	3S	Q38	8F	R56	4C	R174	4D	R279	7D	R387	10N	TP19	7B
C5	10B	C190	10C	C302	10J	CBM23	2E	Q39	9F	R57	4D	R175	2P	R280	7D	R388	9N	TP20	1M
C6	9A	C191	9C	C303	10J	CBM24	2E	Q40	9F	R58	4C	R181	9H	R281	4M	R389	9N	TP21	3G
C7	10A	C192	9C	C304	10A	CBM25	2F	Q41	5G	R59	4A	R182	10H	R282	4M	R390	10N	TP22	10J
C8	9A	C193	9B	C305	11J	CBM27	0P	Q42	4G	R60	5D	R183	10G	R283	3M	R391	10N	TP23	10A
C9	10A	C194	9F	C306	11L	CBM28	0P	Q43	4H	R61	4D	R184	10H	R284	4M	R392	9M	TP24	10A
C10	9A	C195	8G	C307	0N	CBM29	0R	Q44	7B	R62	4A	R185	10G	R285	3L	R393	10M	TP25	0B
C11	11R	C196	8F	C308	11F	CBM31	9K	Q45	8E	R63	5D	R186	10G	R286	3L	R394	10L	TP26	11C
C12	9S	C197	9H	C309	0D	CBM32	7K	Q46	8D	R64	4D	R187	10F	R287	3M	R395	10L	TP27	7B
C13	11R	C198	8H	C310	0D	CBM33	9J	Q47	9D	R65	4C	R188	10F	R288	3M	R396	10L	TP28	10L
C14	9R	C199	5G	C311	1A	CBM34	7J	Q48	8C	R66	3A	R189	10E	R289	2K	R397	9L	TP29	8L
C15	11R	C200	4G	C312	1A	CBM35	11K	Q49	8F	R67	3A	R190	10E	R290	2K	R399	9M	TP30	11M
C16	9R	C201	4H	C313	11N	CF1	1L	Q50	7F	R68	3C	R191	10D	R291	3M	R401	9M	TP31	5J
C17	11P	C202	4G	C314	9J	CN6	0M	Q51	7F	R69	3C	R192	10E	R292	1M	R402	9L	TP42	1T
C18	9R	C203	3G	C315	2P	CN16	0S	Q52	7E	R70	3D	R193	10D	R293	1M	R403	9M	TP43	1U
C19	11P	C204	4H	C316	7L	D5	5A	Q53	8J	R71	3C	R194	9D	R294	1L	R404	9L	TP44	1U
C20	9R	C205	4H	C317	5M	D6	4A	Q54	7H	R73	3A	R195	10C	R295	1L	R405	9L	TP45	1U
C21	7B	C206	8C	C318	4M	D8	4A	Q55	7H	R74	4D	R196	10C	R296	0M	R406	9M	TP46	1U
C22	7A	C207	8C	C319	6K	D9	3A	Q56	2D	R75	3D	R197	10B	R297	1L	R407	9L	TP47	1U
C23	6B	C208	8E	C320	6K	D11	6S	Q57	5F	R76	4A	R198	10C	R298	1L	R408	9L	TP48	1V
C24	6B	C209	8D	C321	9J	D12	5S	Q58	6E	R77	4D	R199	9C	R299	0M	R409	9L	TP49	1V
C25	6B	C210	8C	C322	2M	D14	4S	Q59	5E	R78	3D	R200	8F	R300	0M	R410	10L	X1	2J
C27	7C	C211	9C	C323	9F	D15	3S	Q60	6E	R79	3C	R201	8F	R301	0M	R411	9L		
C28	6D	C212	8C	C324	9H	D20	10F	Q61	4F	R80	2A	R202	9F	R302	0N	R412	9L		
C29	6D	C213	9C	C325	9D	D21	10F	Q62	4E	R81	3A	R203	8G	R303	0N	R413	9L		
C30	6D	C214	7C	C326	9E	D22	10G	Q63	3E	R82	2C	R204	8G	R304	2L	R415	8P		
C31	3J	C215	7D	C327	7C	DL1	1B	Q64	4E	R83	3C	R205	8G	R305	2M	R416	7P		
C32	2J	C216	7C	C328	7E	IC1	7A	Q65	3L	R84	2D	R206	8G	R306	2N	R417	7P		
C33	6C	C217	8G	C329	9J	IC2	7A	Q66	3L	R85	2C	R207	8G	R307	1N	R418	8P		
C34	5B	C218	7G	C330	8J	IC3	7R	Q67	1M	R86	3A	R208	8G	R308	2B	R419	7P		
C35	5B	C219	7G	C331	1K	IC4	7R	Q68	1M	R87	3D	R209	8H	R309	1D	R420	8N		
C36	5A	C220	7F	C332	1J	IC5	3J	Q69	5L	R88	3D	R210	9H	R310	1D	R421	7N		
C37	5B	C221	8E	C333	1K	IC6	6D	Q70	5L	R89	3A	R211	9H	R311	1E	R422	8N		
C38	5D	C222	8E	C334	1K	IC7	6L	Q71	3H	R90	3D	R212	8F	R312	1E	R423	8N		
C39	5C	C223	6E	C335	7H	IC11	10G	Q72	1J	R91	3D	R213	9F	R313	2D	R424	8N		



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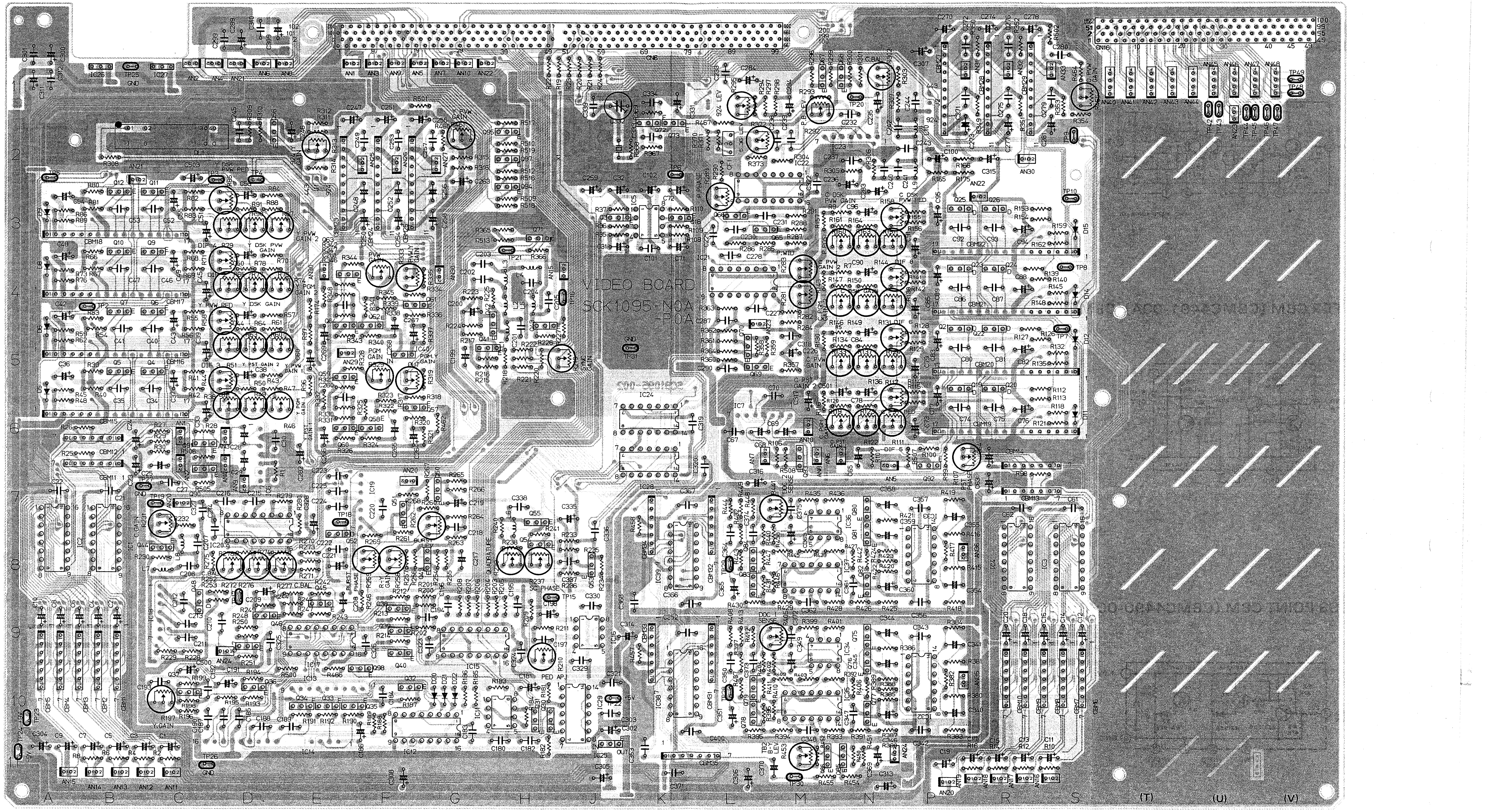
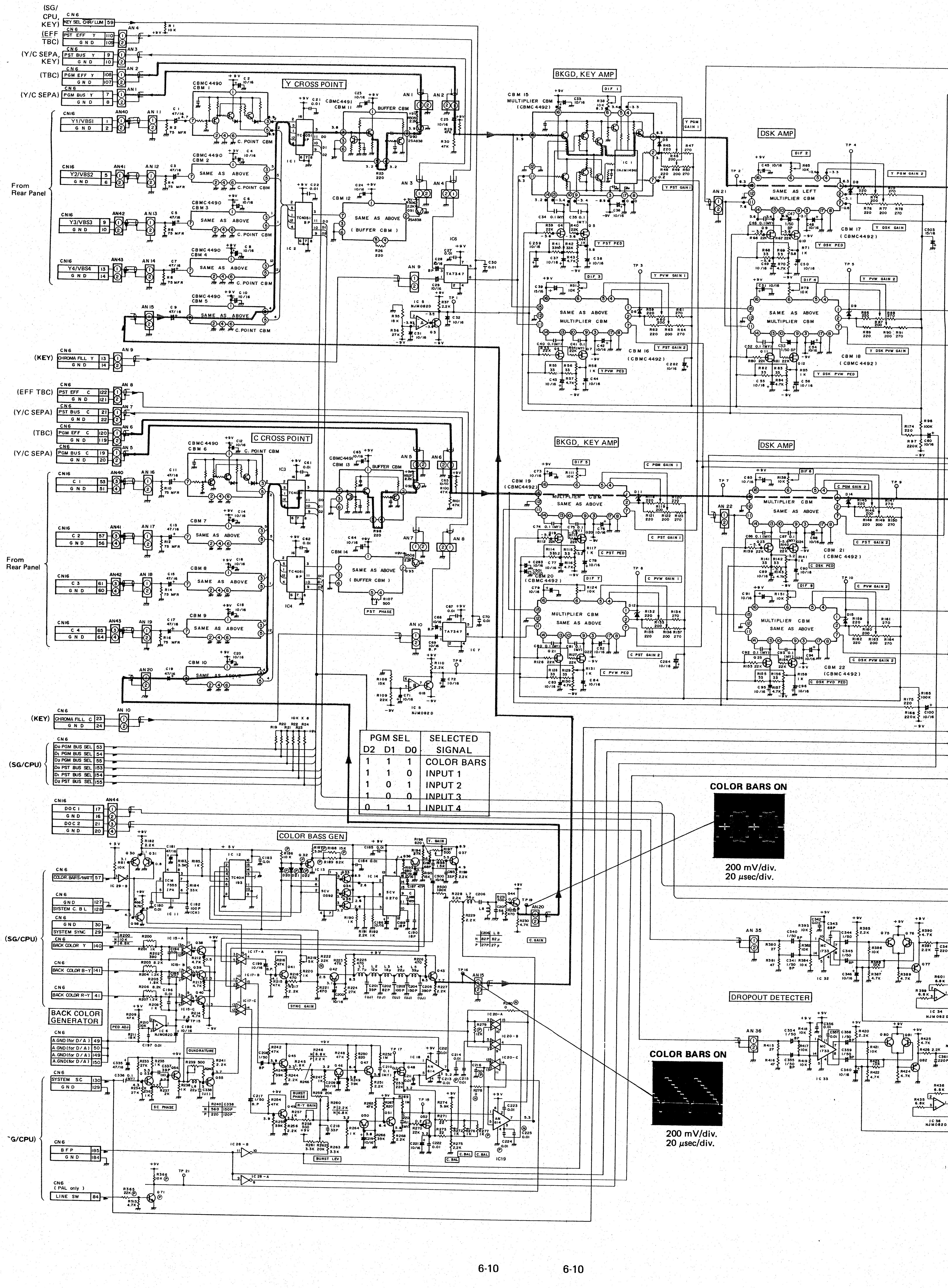

VIDEO BOARD
SCK1095-N0A
-P0A
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S
(T)
(U)
(V)

6.9 VIDEO BOARD SCHEMATIC DIAGRAM 0 8


(SG/CPU, KEY)
CN6
KEY SEL CHR/LUM 59
(EFF TBC)
PST EFF Y 110
GND 109
(Y/C SEPA, KEY)
PST BUS Y 9
GND 10
(TBC)
PGM EFF Y 108
GND 107
(Y/C SEPA)
PGM BUS Y 7
GND 8
Y CROSS POINT
CBMC4490 CBM 1
CBMC4491 CBM 11
BUFFER CBM
C. POINT CBM
SAME AS ABOVE
CBM 12
(BUFFER CBM)
Y1/VBS1
Y2/VBS2
Y3/VBS3
Y4/VBS4
From Rear Panel
TC4051 BP
IC6
TA7347
IC 5 NJM082D
BKGD, KEY AMP
CBM 15 MULTIPLIER CBM (CBMC4492)
NJM1496
Y PGM GAIN 1
Y PST GAIN 1
Y PST PED
Y PVW GAIN 1
Y PST GAIN 2
Y PVW PED
CBM 16 (CBMC4492)
SAME AS ABOVE MULTIPLIER CBM
DSK AMP
SAME AS LEFT MULTIPLIER CBM
CBM 17 (CBMC4492)
Y PGM GAIN 2
Y DSK GAIN
Y DSK PED
Y PVW GAIN 2
Y DSK PVW GAIN
Y DSK PVW PED
CBM 18 (CBMC4492)
(KEY)
CHROMA FILL Y 13
GND 14
(EFF TBC)
PST EFF C 122
GND 121
(Y/C SEPA)
PST BUS C 21
GND 22
(TBC)
PGM EFF C 120
GND 119
(Y/C SEPA)
PGM BUS C 19
GND 20
C CROSS POINT
CBMC4490 CBM 6
CBMC4491 CBM 13
CBM 7
CBM 8
CBM 9
CBM 10
CBM 14
C1
C2
C3
C4
IC3
IC4
IC7
PST PHASE
BKGD, KEY AMP
CBM 19 (CBMC4492)
C PGM GAIN 1
C PST GAIN 1
C PST PED
C PVW GAIN 1
C PST GAIN 2
C PVW PED
CBM 20 (CBMC4492)
C PGM GAIN 2
C PST GAIN 2
C DSK PED
C PVW GAIN 2
C DSK PVW GAIN 2
C DSK PVD PED
CBM 21 (CBMC 4492)
CBM 22 (CBMC 4492)
(KEY)
CHROMA FILL C 23
GND 24
(SG/CPU)
D0 PGM BUS SEL 53
D1 PGM BUS SEL 54
D2 PGM BUS SEL 55
D0 PST BUS SEL 153
D1 PST BUS SEL 154
D2 PST BUS SEL 155
DOC1 17
GND 16
DOC2 21
GND 20
COLOR BASS GEN
COLOR BARS/MATT 57
SYSTEM C. BL 128
SYSTEM SYNC 29
BACK COLOR Y 140
BACK COLOR B-Y 141
BACK COLOR R-Y 41
BACK COLOR GENERATOR
PED ADJ
A.GND (for D/A) 49
A.GND (for D/A) 50
A.GND (for D/A) 51
A.GND (for D/A) 150
SYSTEM SC 130
GND 129
SC PHASE
QUADRATURE
SYNC GAIN
Y. GAIN
R-Y GAIN
BURST PHASE
BURST LEV
C.GAIN
C.BAL
IC19
BFP 185
GND 184
(PAL only)
LINE SW 84
DROPOUT DETECTER
IC 32
IC 33
IC 34 NJM082D
IC 36 NJM082D
AN 35
AN 36

PGM SEL D2	D1	D0	SELECTED SIGNAL
1	1	1	COLOR BARS
1	1	0	INPUT 1
1	0	1	INPUT 2
1	0	0	INPUT 3
0	1	1	INPUT 4

COLOR BARS ON

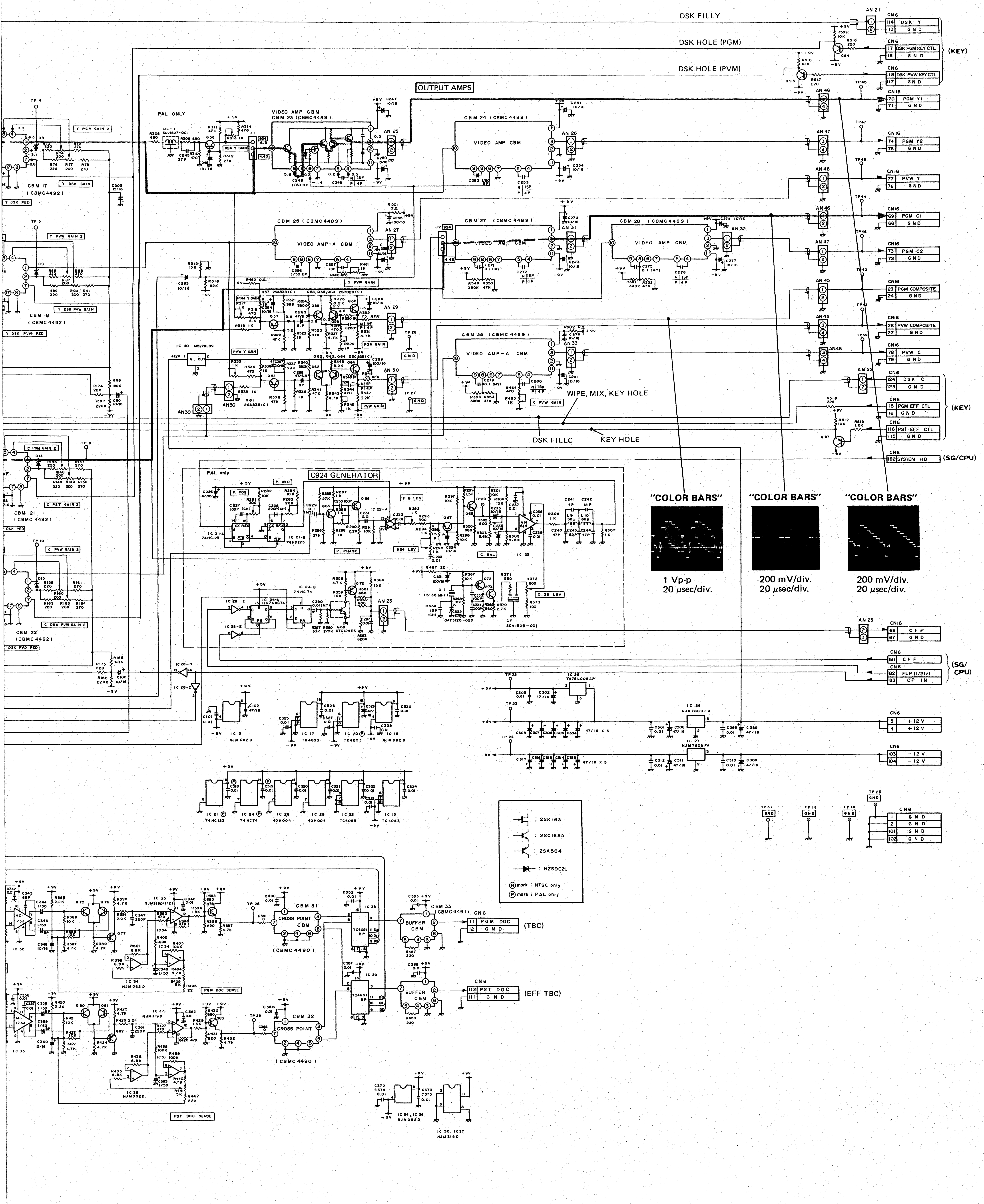
200 mV/div.
20 µsec/div.

COLOR BARS ON

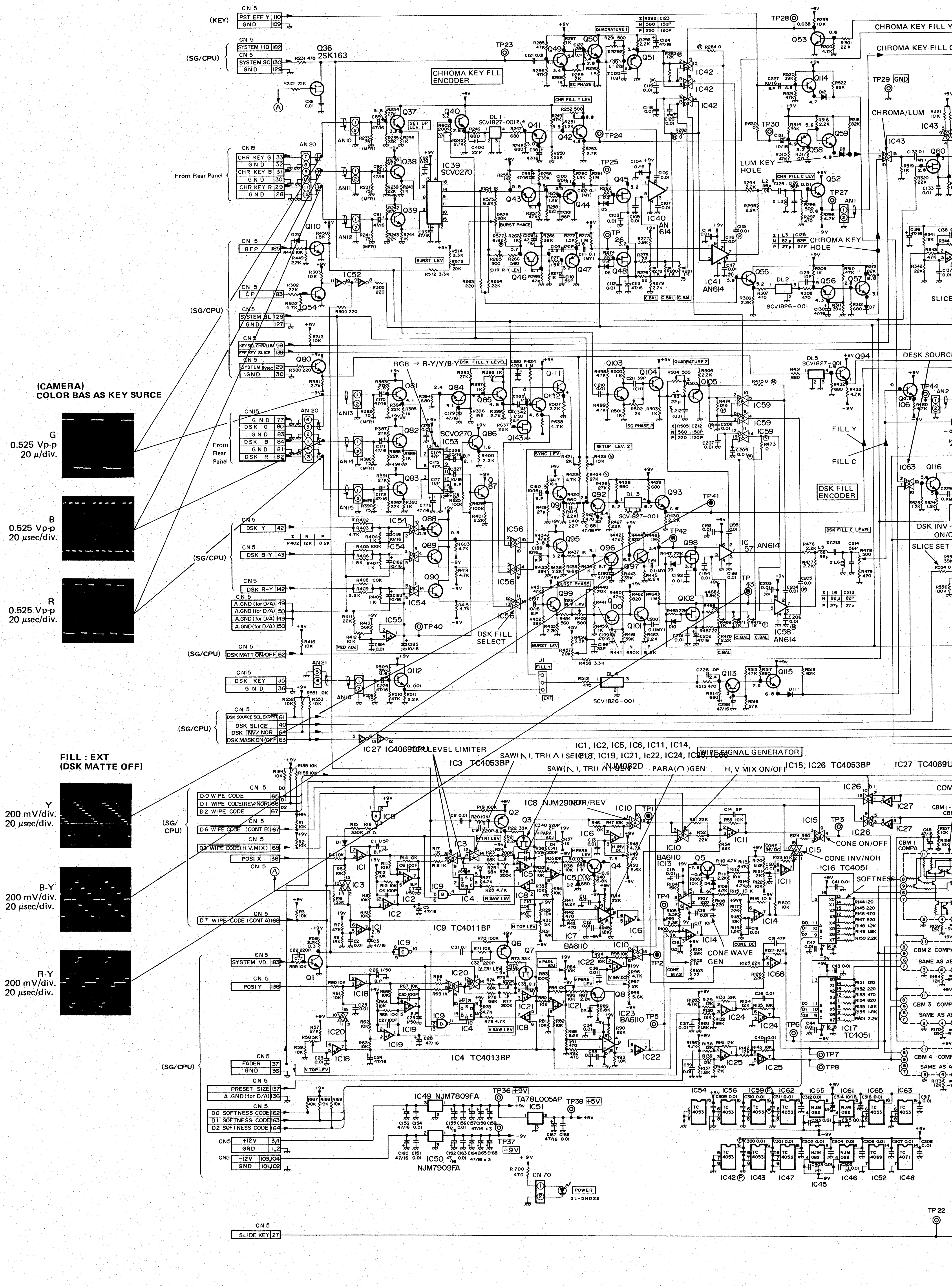
200 mV/div.
20 µsec/div.

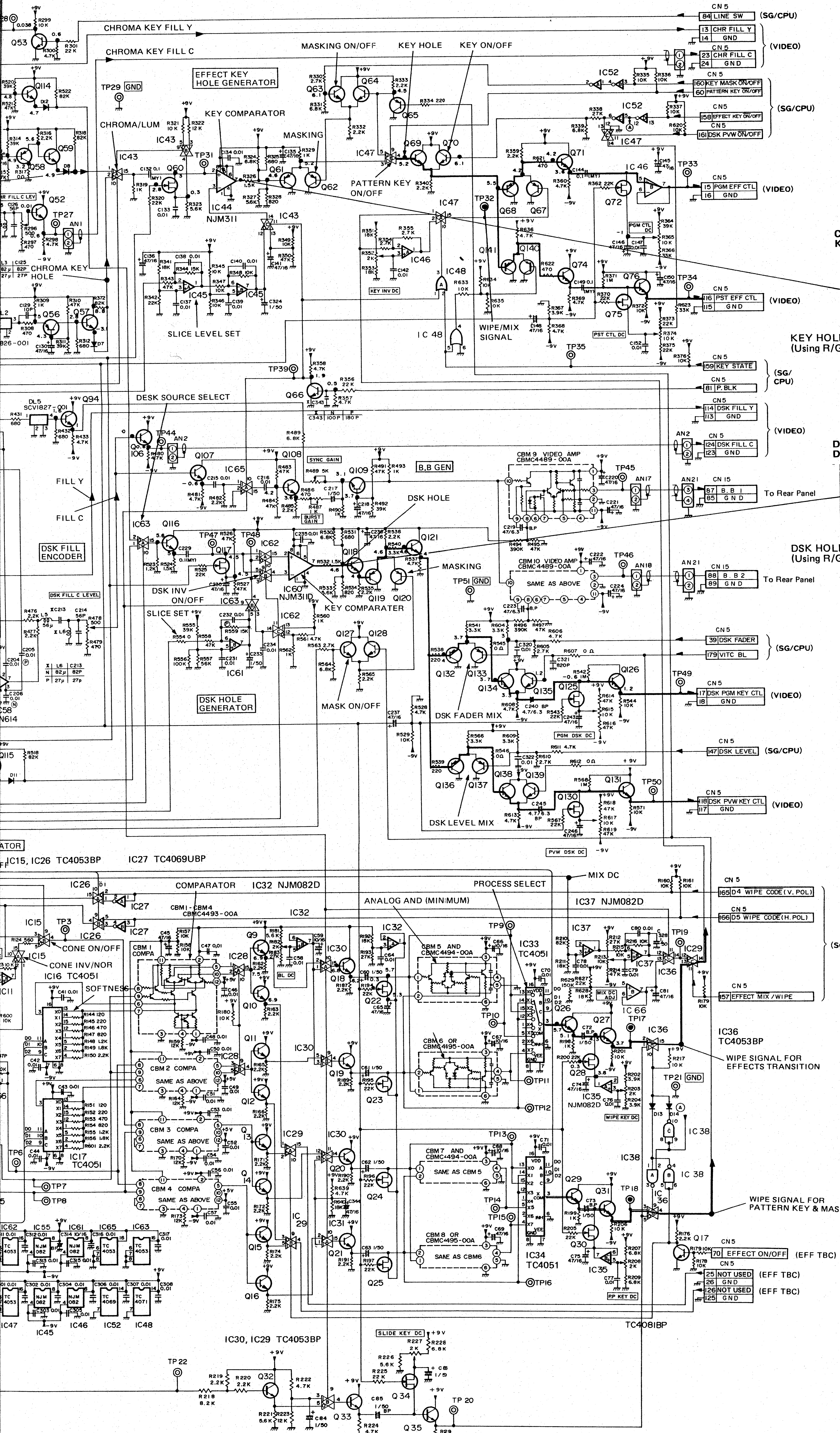
INTERNAL COLOR BARS Y ON THE PROGRAM LINE

INTERNAL COLOR BARS C ON THE PROGRAM LINE

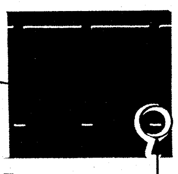

DSK FILLY
DSK HOLE (PGM)
DSK HOLE (PVM)
OUTPUT AMPS
PAL ONLY
VIDEO AMP CBM
CBM 23 (CBMC4489)
CBM 24 (CBMC4489)
CBM 25 (CBMC4489)
VIDEO AMP-A CBM
CBM 27 (CBMC4489)
CBM 28 (CBMC4489)
CBM 29 (CBMC4489)
CBM 17 (CBMC4492)
CBM 18 (CBMC4492)
CBM 21 (CBMC 4492)
CBM 22 (CBMC4492)
Y PGM GAIN 2
Y DSK GAIN
Y DSK PED
Y PVW GAIN 2
Y DSK PVW GAIN
Y DSK PVW PED
C PGM GAIN 2
C PST GAIN 2
C PVW GAIN 2
C DSK PVW GAIN 2
C DSK PVD PED
PGM Y GAIN
PVW Y GAIN
Y PVW GAIN
PGM GAIN
PVW GAIN
C PVW GAIN
924 Y GAIN
WIPE, MIX, KEY HOLE
DSK FILLC
KEY HOLE
C924 GENERATOR
PAL only
P. POS
P. WID
P. B LEV
P. PHASE
924 LEV
C. BAL
5.36 LEV
"COLOR BARS"
1 Vp-p
20 µsec/div.
"COLOR BARS"
200 mV/div.
20 µsec/div.
"COLOR BARS"
200 mV/div.
20 µsec/div.
CN6
DSK Y
GND
DSK PGM KEY CTL
DSK PVW KEY CTL
(KEY)
PGM Y1
PGM Y2
PVW Y
PGM C1
PGM C2
PGM COMPOSITE
PVW COMPOSITE
PVW C
DSK C
PGM EFF CTL
PST EFF CTL
SYSTEM HD
(SG/CPU)
CFP
FLP (1/2fv)
CP IN
(SG/ CPU)
+12 V
-12 V
IC 25 TA78L005AP
IC 26 NJM7809FA
IC 27 NJM7909FA
: 2SK163
: 2SC1685
: 2SA564
: HZS9C2L
Ⓝ mark : NTSC only
Ⓟ mark : PAL only
CBM 31 CROSS POINT CBM (CBMC4490)
CBM 32 CROSS POINT CBM (CBMC4490)
CBM 33 (CBMC4491) BUFFER CBM
PGM DOC
PST DOC
(TBC)
(EFF TBC)
PGM DOC SENSE
PST DOC SENSE
IC 34, IC 36 NJM082D
IC 35, IC37 NJM319D

6.12 KEY BOARD SCHEMATIC DIAGRAM 0 9


(KEY)
PST EFF Y
(SG/CPU)
SYSTEM HD
SYSTEM SC
Q36 2SK163
TP23
CHROMA KEY FLL ENCODER
QUADRATURE 1
SC PHASE 1
CHR FILL Y LEV
IC42
TP28
Q53
CHROMA KEY FILL Y
CHROMA KEY FILL C
Q114
TP29 GND
CHROMA/LUM
IC43
Q37
Q40
DL1 SCV1827-0012
Q41
Q42
TP24
SET UP LEV. 1
From Rear Panel
CHR KEY G
CHR KEY B
CHR KEY R
GND
AN 20
AN10
AN11
AN12
Q38
Q39
IC39 SCV0270
Q43
Q44
Q45
TP25
IC40 AN614
BURST PHASE
BURST LEV
CHR R-Y LEV
Q46
Q47
Q48
TP26
LUM KEY HOLE
CHR FILL C LEV
Q52
TP27
AN1
CHROMA KEY HOLE
IC41 AN614
Q55
DL2 SCV1826-001
Q56
Q57
SLICE
C.BAL
Q59
Q58
Q60
Q110
BFP
CP
IC52
Q54
SYSTEM BL
KEY SEL CHR/LUM
EFF KEY SLICE
Q80
SYSTEM SYNC
(CAMERA)
COLOR BAS AS KEY SURCE
G
0.525 Vp-p
20 μ/div.
B
0.525 Vp-p
20 μsec/div.
R
0.525 Vp-p
20 μsec/div.
RGB → R-Y/Y/B-Y
DSK FILL Y LEVEL
CN15
DSK G
DSK B
DSK R
From Rear Panel
AN13
AN14
AN15
Q81
Q82
Q83
Q84
Q85
Q86
Q87
SCV0270 IC53
Q111
Q112
Q143
SYNC LEV
Q103
Q104
Q105
QUADRATURE 2
SC PHASE 2
IC59
DL5 SCV1827-001
Q94
DESK SOURCE
TP44
FILL Y
FILL C
IC63
Q116
DSK FILL ENCODER
DSK FILL C LEVEL
DSK INV ON/OFF
SLICE SET
SETUP LEV. 2
Q91
Q92
DL3 SCV1827-001
Q93
TP41
TP42
Q98
IC 57 AN614
DSK Y
DSK B-Y
DSK R-Y
IC54
Q88
Q89
Q90
IC56
Q95
Q96
Q97
Q99
Q100
Q101
Q102
TP 43
IC58 AN614
BURST PHASE
BURST LEV
A.GND (for D/A)
IC55
TP40
PED ADJ
DSK FILL SELECT
DSK MATT ON/OFF
J1
FILLY
EXT
DL4 SCV1826-001
Q113
Q115
DSK KEY
AN21
AN16
DSK SOURCE SEL EXT/FIL
DSK SLICE
DSK INV/NOR
DSK MASK ON/OFF
IC27 IC4069BP
LEVEL LIMITER
IC1, IC2, IC5, IC6, IC11, IC14, IC18, IC19, IC21, IC22, IC24, IC25, IC66
NJM082D
WIPE SIGNAL GENERATOR
FILL : EXT
(DSK MATTE OFF)
Y
200 mV/div.
20 μsec/div.
B-Y
200 mV/div.
20 μsec/div.
R-Y
200 mV/div.
20 μsec/div.
IC3 TC4053BP
SAW(N), TRI(Λ) SEL
SAW(N), TRI(Λ) GEN
IC8 NJM2903D
R/REV
PARA(∩)GEN
H, V MIX ON/OFF
IC15, IC26 TC4053BP
IC27 TC4069UB
D0 WIPE CODE
D1 WIPE CODE(REV/NOR)
D2 WIPE CODE
D6 WIPE CODE (CONT B)
D3 WIPE CODE(H.V.MIX)
POSI X
D7 WIPE CODE (CONT A)
SYSTEM VD
POSI Y
FADER
IC9 TC4011BP
IC4 TC4013BP
IC10 BA6110
IC13 BA6110
IC23 BA6110
H SAW LEV
H TOP LEV
V TRI LEV
V SAW LEV
V PARA ADJ
V PARA LEV
V INV DC
H PARA LEV
H INV DC
CONE ON/OFF
CONE INV/NOR
IC16 TC4051
SOFTNESS
CONE WAVE GEN
CONE DC
CONE BIAS
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
IC17 TC4051
CBM 1 COMPA
CBM 2 COMPA
CBM 3 COMP
CBM 4 COMP
SAME AS AB
PRESET SIZE
D0 SOFTNESS CODE
D1 SOFTNESS CODE
D2 SOFTNESS CODE
+12V
-12V
IC49 NJM7809FA
TP36 +9V
TA78L005AP
IC51
TP38 +5V
TP37 -9V
IC50 NJM7909FA
CN 70
POWER
GL-5HD22
TP 22
SLIDE KEY
CN 5
CN15


CN 5
84 LINE SW (SG/CPU)
13 CHR FILL Y
14 GND
23 CHR FILL C
24 GND
(VIDEO)
CHROMA KEY FILL Y
CHROMA KEY FILL C
Q53
Q114
Q59
Q58
Q52
TP27
AN1
TP29 GND
EFFECT KEY HOLE GENERATOR
KEY COMPARATOR
CHROMA/LUM
IC43
IC44 NJM311
TP31
Q60
Q61
Q62
MASKING
MASKING ON/OFF
KEY HOLE
KEY ON/OFF
Q63
Q64
Q65
IC47
Q69
Q70
PATTERN KEY ON/OFF
IC52
160 KEY MASK ON/OFF
60 PATTERN KEY ON/OFF
158 EFFECT KEY ON/OFF
161 DSK PVW ON/OFF
(SG/CPU)
Q71
IC46
TP33
15 PGM EFF CTL
16 GND
Q72
TP32
Q68
Q67
Q141
Q140
Q74
Q76
Q75
TP34
116 PST EFF CTL
115 GND
IC48
KEY INV DC
PGM CTL DC
PST CTL DC
WIPE/MIX SIGNAL
TP35
159 KEY STATE
81 P.BLK
CHROMA KEY HOLE
IC45
SLICE LEVEL SET
Q56
Q57
TP39
Q66
DESK SOURCE SELECT
Q94
DL5 SCV1827-001
114 DSK FILL Y
113 GND
124 DSK FILL C
123 GND
AN2
TP44
Q106
Q107
Q108
IC65
Q109
SYNC GAIN
BURST GAIN
B.B GEN
CBM 9 VIDEO AMP CBMC4489-00A
TP45
AN17
AN21
CN 15
87 B.B 1
85 GND
To Rear Panel
DSK HOLE
FILL Y
FILL C
DSK FILL ENCODER
DSK FILL C LEVEL
IC63
Q116
TP47
TP48
Q117
IC62
Q118
Q121
DSK INV ON/OFF
IC60 NJM311D
KEY COMPARATER
Q119
Q120
MASKING
TP51 GND
CBM 10 VIDEO AMP CBMC4489-00A
SAME AS ABOVE
TP46
AN18
88 B.B 2
89 GND
SLICE SET
IC61
DSK HOLE GENERATOR
Q127
Q128
MASK ON/OFF
39 DSK FADER
179 VITC BL
Q132
Q133
Q134
Q135
Q125
Q126
TP49
17 DSK PGM KEY CTL
18 GND
DSK FADER MIX
PGM DSK DC
147 DSK LEVEL
Q136
Q137
Q138
Q139
Q130
Q131
TP50
118 DSK PVW KEY CTL
117 GND
DSK LEVEL MIX
PVW DSK DC
IC15, IC26 TC4053BP
IC27 TC4069UBP
IC26
IC27
COMPARATOR
IC32 NJM082D
CBM1 - CBM4 CBMC4493-00A
IC15
TP3
CONE ON/OFF
CONE INV/NOR
IC16 TC4051
SOFTNESS
IC17 TC4051
CBM 1 COMPA
CBM 2 COMPA
CBM 3 COMPA
CBM 4 COMPA
SAME AS ABOVE
IC28
BL DC
Q9
Q10
Q11
Q12
Q13
Q14
Q15
Q16
IC29
IC30
TP6
TP7
TP8
ANALOG AND (MINIMUM)
PROCESS SELECT
MIX DC
IC37 NJM082D
TP9
CBM 5 AND CBMC4494-00A
CBM 6 OR CBMC4495-00A
CBM 7 AND CBMC4494-00A
SAME AS CBM 5
CBM 8 OR CBMC4495-00A
SAME AS CBM 6
IC33 TC4051
IC34 TC4051
Q18
Q19
Q20
Q21
Q22
Q23
Q24
Q25
TP10
TP11
TP12
TP13
TP14
TP15
TP16
Q26
Q27
Q28
IC35 NJM082D
WIPE KEY DC
MIX DC ADJ
IC 66
TP17
TP19
IC29
IC36
IC36 TC4053BP
WIPE SIGNAL FOR EFFECTS TRANSITION
TP21 GND
IC38
Q29
Q31
Q30
IC35
TP18
PP KEY DC
WIPE SIGNAL FOR PATTERN KEY & MASKING
Q17
CN 5
165 D4 WIPE CODE (V. POL)
166 D5 WIPE CODE (H. POL)
157 EFFECT MIX / WIPE
(SG/CPU)
70 EFFECT ON/OFF (EFF TBC)
25 NOT USED
26 GND (EFF TBC)
126 NOT USED
125 GND (EFF TBC)
TC4081BP
IC62 IC55 IC61 IC65 IC63
IC47 IC46 IC52 IC48 IC45
IC30, IC29 TC4053BP
SLIDE KEY DC
TP 22
Q32
Q33
Q34
Q35
IC 31
TP 20

CHROMA KEY ON
KEY SLICE : ↻ full

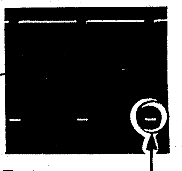


4.5 Vp-p
20 µsec/div.

KEY HOLE
(Using R/G/B inputs)

Blanking

DSK SORCE : EXT
DSK SLICE : ↻ full



4.5 Vp-p
20 µsec/div.

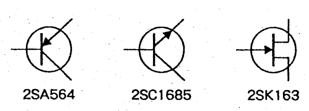
DSK HOLE
(Using R/G/B inputs)

Blanking

WIPE CODE

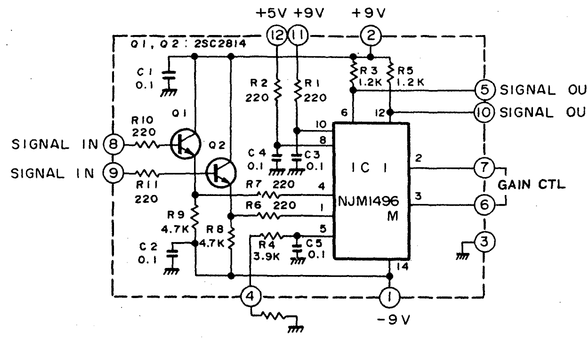
	NORMAL MODE								REVERSE MODE							
	D7	D6	D5	D4	D3	D2	D1	D0	D7	D6	D5	D4	D3	D2	D1	D0
◨	1	0	0	0	0	1	0	1	1	0	0	0	0	1	1	1
⬓	1	0	0	0	0	1	0	0	1	0	0	0	0	1	1	0
◰	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
◳	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0
◲	1	0	1	1	0	0	0	0	1	0	1	1	0	0	1	0
◱	1	0	0	1	0	0	0	0	1	0	0	1	0	0	1	0
▣	0	0	1	1	0	0	0	0	0	0	1	1	0	0	1	0
◆	0	0	1	1	1	1	0	1	0	0	1	1	1	1	1	1
●	0	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1

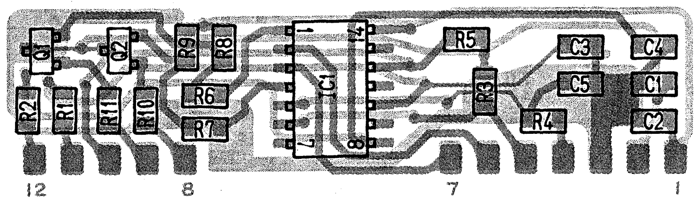
Unless oherwise specified transistors and F.E.T.s are ;


2SA564
2SC1685
2SK163

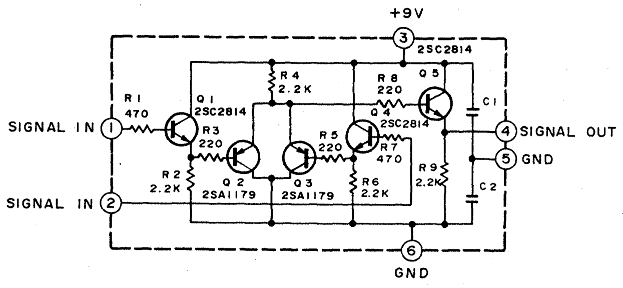
6.10 CBMs ON THE KEY BOARD

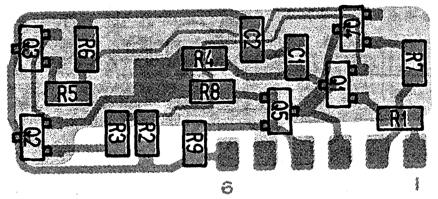
● COMPARATOR CBM (CBMC4493-00A) (CBM1, 2, 3, 4)


+5V +9V
+9V
12
11
2
Q1, Q2 : 2SC2814
C1
0.1
R2
220
R1
220
R3
1.2K
R5
1.2K
5 SIGNAL OUT
10 SIGNAL OUT
6
12
10
8
R10
220
Q1
SIGNAL IN 8
SIGNAL IN 9
Q2
C4
0.1
C3
0.1
IC 1
NJM1496
M
2
3
7
GAIN CTL
6
R11
220
R7 220
4
R6 220
1
R9
4.7K
R8
4.7K
5
C2
0.1
R4
3.9K
C5
0.1
14
3
4
1
-9V

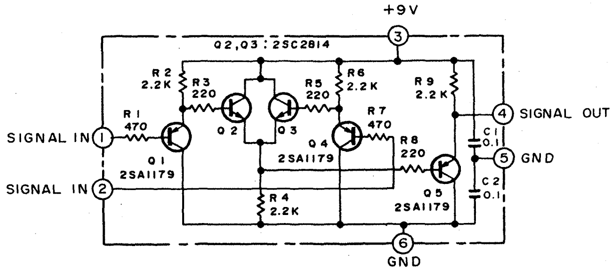

Q1
Q2
R9
R8
IC1
R5
C3
C4
R2
R1
R11
R10
R6
R7
R3
C5
C1
R4
C2
12
8
7
1

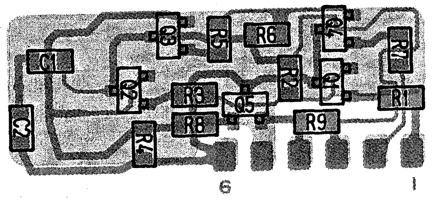
● AND CBM (CBMC4494-00A) (CBMC5, 7)


+9V
3
2SC2814
R4
2.2K
R8
220
Q5
R1
470
Q1
2SC2814
Q4
2SC2814
C1
SIGNAL IN 1
R3
220
R5
220
R7
470
4 SIGNAL OUT
5 GND
R2
2.2K
Q2
2SA1179
Q3
2SA1179
R6
2.2K
R9
2.2K
C2
SIGNAL IN 2
6
GND

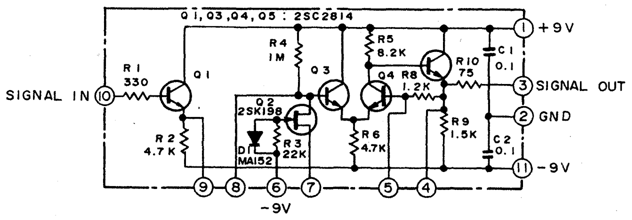

Q3
R6
R4
C2
C1
Q4
R7
R5
R8
Q1
Q5
R1
Q2
R3
R2
R9
6
1

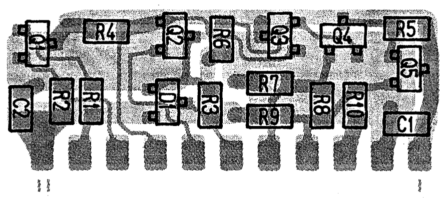
● OR CBM (CBMC4495-00A) (CBM6, 8)


+9V
3
Q2, Q3 : 2SC2814
R2
2.2K
R3
220
R6
2.2K
R5
220
R9
2.2K
R7
470
4 SIGNAL OUT
R1
470
SIGNAL IN 1
Q2
Q3
Q4
2SA1179
C1
0.1
5 GND
Q1
2SA1179
R8
220
Q5
2SA1179
C2
0.1
SIGNAL IN 2
R4
2.2K
6
GND


C1
Q3
R5
R6
Q4
R7
C2
Q2
R3
R8
R2
Q1
Q5
R9
R1
R4
6
1

● VIDEO AMP CBM (CBMC4489-00A) (CBM9, 10)


Q1, Q3, Q4, Q5 : 2SC2814
1 +9V
R4
1M
R5
8.2K
C1
0.1
R1
330
Q1
Q3
Q4
R8
1.2K
R10
75
3 SIGNAL OUT
SIGNAL IN 10
Q2
2SK198
2 GND
R2
4.7K
D1
MA152
R3
22K
R6
4.7K
R9
1.5K
C2
0.1
11 -9V
9
8
6
7
5
4
-9V


Q1
R4
Q2
R6
Q3
Q4
R5
Q5
C2
R2
R1
D1
R3
R7
R8
R10
R9
C1
11
1

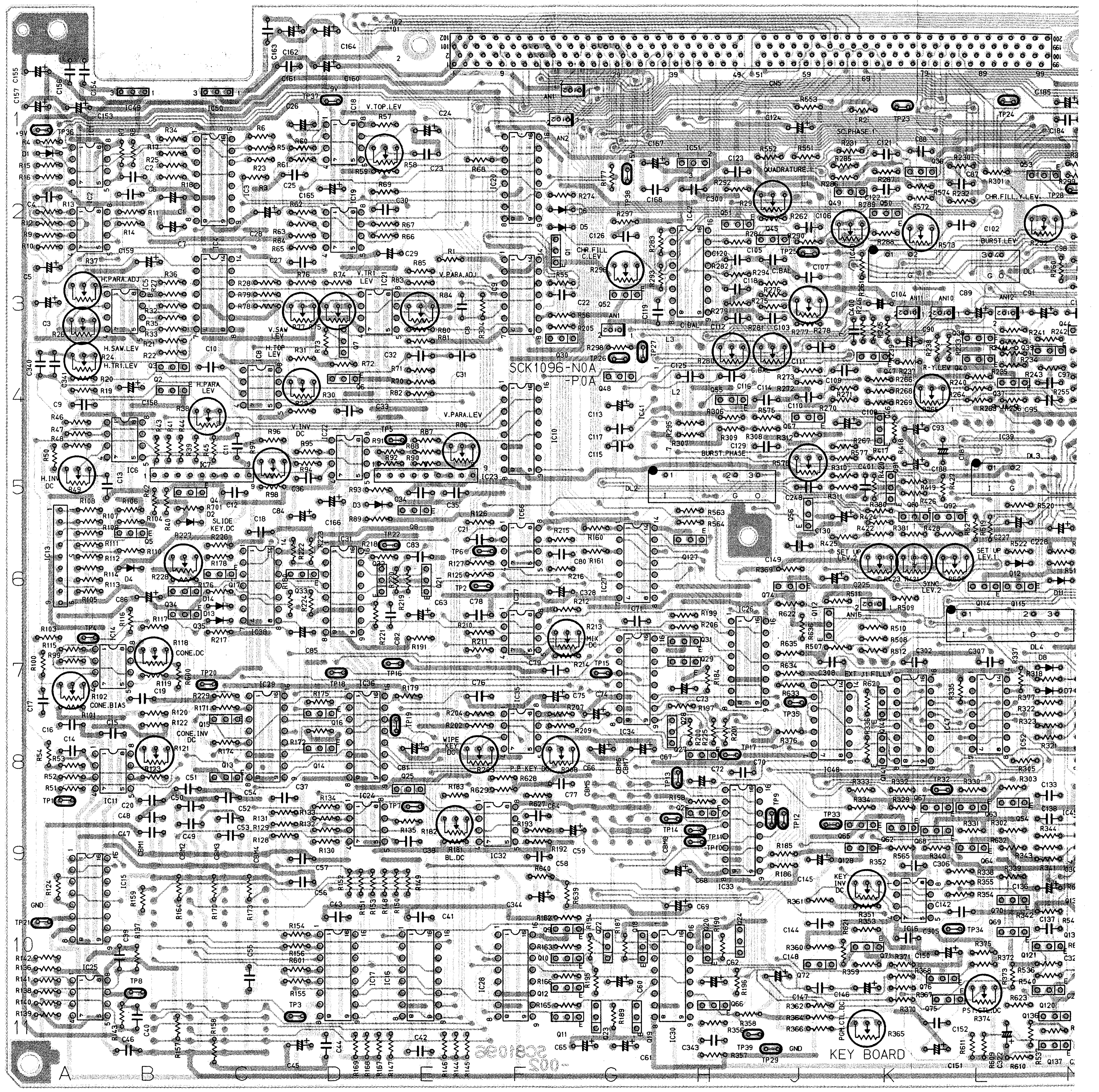
6.11 KEY CIRCUIT BOARD

- **Parts Location Table of KEY board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

AN2	1F	C86	6B	C191	3P	CN15	0S	Q8	5E	Q112	6J	R73	3D	R173	9C	R274	2F	R375	10K
AN1	0F	C87	1K	C192	3R	CN70	11S	Q9	10F	Q113	6M	R74	3D	R174	8C	R275	3H	R376	7H
AN1	3G	C88	1K	C193	5R	D1	1A	Q10	10F	Q114	6L	R75	3D	R175	7D	R276	3H	R377	7L
AN2	4S	C89	3L	C194	4P	D2	5B	Q11	11F	Q115	6L	R76	3C	R176	6B	R277	3J	R380	5J
AN10	3K	C90	3K	C195	3P	D3	5D	Q12	10F	Q116	11R	R77	3C	R177	1G	R278	3J	R381	5K
AN11	3K	C91	3L	C196	3P	D4	6B	Q13	8C	Q117	9P	R78	3C	R178	6B	R279	3H	R382	2N
AN12	3L	C92	4M	C197	1S	D5	2F	Q14	8D	Q118	8S	R79	3C	R179	7E	R280	3H	R383	2N
AN13	2N	C93	4K	C198	3N	D6	2F	Q15	7C	Q119	8S	R80	3E	R180	6C	R281	3H	R384	2N
AN14	1R	C94	4M	C199	6N	D7	7L	Q16	7D	Q120	10L	R81	3E	R181	9E	R282	2H	R385	2N
AN15	1P	C95	4L	C200	6N	D8	7L	Q17	6B	Q121	10L	R82	4D	R182	8E	R283	2G	R386	2R
AN16	6J	C96	4M	C201	6P	D9	3R	Q18	10G	Q125	8N	R83	3D	R183	8E	R284	2H	R387	2R
AN17	11R	C97	4L	C202	4R	D10	9P	Q19	11G	Q126	8N	R84	3E	R184	7H	R285	1J	R388	2R
AN18	11N	C98	2M	C203	6P	D11	6M	Q20	10H	Q127	5H	R85	2E	R185	9J	R286	1J	R389	2R
AN20	1T	C99	3M	C204	5R	D12	6L	Q21	6E	Q128	9J	R86	4E	R186	9J	R287	1K	R390	2P
AN21	1U	C100	3M	C205	5P	D13	6B	Q22	10G	Q130	10N	R87	4E	R187	10G	R288	2J	R391	2P
C1	2B	C101	3M	C206	6P	D14	6B	Q23	11F	Q131	9N	R88	4E	R189	10G	R289	2J	R392	2P
C2	1A	C102	2K	C207	4P	D20	3R	Q24	10H	Q132	9P	R89	5D	R190	10H	R290	2J	R393	2P
C3	3A	C103	3H	C208	6R	DL1	2K	Q25	8E	Q133	8P	R90	4E	R191	6E	R291	2H	R394	2P
C4	2A	C104	3K	C209	5P	DL2	5G	Q26	8H	Q134	9M	R91	4D	R192	9F	R292	2H	R395	2P
C5	2A	C105	2H	C210	3R	DL3	5L	Q27	8H	Q135	10M	R92	4D	R193	8F	R293	3G	R396	2P
C6	2A	C106	2J	C211	3S	DL4	6K	Q28	8G	Q136	11M	R93	5D	R194	10F	R294	3H	R397	2P
C7	2B	C107	2J	C212	4R	DL5	6N	Q29	7H	Q137	11M	R94	4C	R195	10F	R295	4H	R398	1R
C8	3E	C108	4J	C213	4P	IC1	1A	Q30	3F	Q138	9M	R95	4C	R196	10H	R296	2G	R399	2R
C9	4A	C109	3J	C214	4R	IC2	2A	Q31	6H	Q139	10M	R96	4C	R197	7G	R297	2G	R400	2S
C10	3B	C110	4J	C215	5T	IC3	1B	Q32	6D	Q140	7K	R97	4C	R198	8H	R298	3G	R401	2R
C11	4C	C111	3J	C216	5T	IC4	2B	Q33	6C	Q141	8K	R98	5C	R199	6H	R299	1M	R402	1N
C12	5C	C112	3H	C217	7S	IC5	3A	Q34	6B	Q142	0N	R99	7A	R200	8G	R300	1M	R403	1N
C13	5A	C113	4G	C218	10N	IC6	4A	Q35	6B	Q143	0N	R100	7A	R201	8H	R301	1L	R404	1P
C14	8A	C114	4H	C219	11S	IC7	5B	Q36	1K	R1	2E	R101	7A	R202	7E	R302	8L	R405	1N
C15	7A	C115	4G	C220	11P	IC8	3C	Q37	4L	R2	1J	R102	7A	R203	8E	R303	8L	R406	1N
C16	7A	C116	4H	C221	11P	IC9	2E	Q38	3L	R3	1C	R103	6A	R204	7E	R304	3E	R407	1P
C17	7A	C117	4G	C222	11M	IC10	4E	Q39	3L	R4	1A	R104	5B	R205	3F	R305	8L	R408	0P
C18	5C	C118	3H	C223	11P	IC11	8A	Q40	3L	R5	1C	R105	6A	R206	6H	R306	4H	R409	0P
C19	7A	C119	3G	C224	10M	IC13	5A	Q41	2M	R6	1C	R106	5A	R207	7F	R307	4H	R410	0P
C20	8B	C120	2H	C225	6J	IC14	7A	Q42	2M	R7	1A	R107	5A	R208	8F	R308	4H	R411	1M
C21	5E	C121	1K	C226	6M	IC15	9A	Q43	3M	R8	1A	R108	5A	R209	7F	R309	4H	R412	1M
C22	3F	C122	2K	C227	5L	IC16	10D	Q44	3M	R9	2A	R109	5A	R210	6E	R310	5J	R413	1M
C23	1D	C123	1H	C228	5M	IC17	10C	Q45	2H	R10	2A	R110	5B	R211	7E	R311	5J	R414	1R
C24	1E	C124	1J	C229	10R	IC18	1D	Q46	4J	R11	2B	R111	5A	R212	6F	R312	4J	R415	0R
C25	1C	C125	4G	C230	10P	IC19	2D	Q47	3K	R12	2A	R112	6A	R213	6F	R313	8M	R416	1S
C26	1C	C126	2G	C231	9R	IC20	1E	Q48	4G	R13	2A	R113	6A	R214	7F	R314	4N	R417	4K
C27	2C	C129	4H	C232	8R	IC21	3D	Q49	2J	R14	2A	R114	6A	R215	5F	R315	5N	R418	4K
C28	2C	C130	5J	C233	8R	IC22	4D	Q50	2K	R15	1A	R115	7A	R216	6F	R316	5N	R419	5K
C29	2D	C131	4N	C234	9S	IC23	5D	Q51	2H	R16	1A	R116	6A	R217	6B	R317	5N	R420	5J
C30	2D	C132	7N	C235	8R	IC24	8D	Q52	3G	R17	1B	R117	6B	R218	6D	R318	7L	R421	6K
C31	3E	C133	8L	C236	9S	IC25	10A	Q53	1L	R18	1B	R118	7B	R219	6D	R319	7N	R422	5K
C32	3E	C134	7P	C237	9N	IC26	6H	Q54	8L	R19	4A	R119	7B	R220	6D	R320	6N	R423	6K
C33	4D	C135	7P	C240	7N	IC27	5G	Q55	4H	R20	4A	R120	7B	R221	6D	R321	7L	R424	5K
C34	5E	C136	9L	C241	8M	IC28	10E	Q56	5J	R21	3B	R121	8B	R222	5C	R322	7L	R425	5J
C35	5E	C137	10L	C243	8P	IC29	7C	Q57	4J	R22	3B	R122	7B	R223	6C	R323	7L	R426	5K
C36	5C	C138	8L	C245	9N	IC30	10G	Q58	5N	R23	1C	R123	8B	R224	6C	R324	7R	R427	5K
C37	8C	C139	9M	C246	10N	IC31	5D	Q59	5N	R24	3A	R124	9A	R225	7H	R325	7R	R428	5K
C38	9E	C140	8M	C247	8N	IC32	8E	Q60	6N	R25	1B	R125	6E	R226	5B	R326	8P	R429	5N
C39	10A	C141	7M	C248	5J	IC33	8H	Q61	7R	R26	3A	R126	5E	R227	6B	R327	7P	R430	4N
C40	10A	C142	9K	C249	1P	IC34	6G	Q62	8K	R27	3B	R127	6E	R228	6B	R328	7P	R431	6M
C41	9E	C144	10J	C250	0P	IC35	7E	Q63	8L	R28	3C	R128	9C	R229	7C	R329	8K	R432	6R
C42	11D	C145	9J	C300	2H	IC36	7D	Q64	9L	R29	4C	R129	8C	R230	1K	R330	8L	R433	6R
C43	9D	C146	10J	C301	7M	IC37	6E	Q65	8J	R30	4C	R130	9C	R231	1J	R331	8K	R434	3N
C44	11D	C147	10J	C302	7K	IC38	5C	Q66	10H	R31	3C	R131	8C	R232	2K	R332	8K	R435	3N
C45	11C	C148	10J	C303	9M	IC39	4K	Q67	8K	R32	3B	R132	8D	R233	3K	R333	8J	R436	3N
C46	11B	C149	5J	C304	8M	IC40	2J	Q68	8K	R33	3B	R133	8D	R234	3L	R334	8J	R437	4N
C47	9B	C150	10K	C305	10K	IC41	4G	Q69	10L	R34	1B	R134	8C	R235	3L	R335	7K	R438	4N
C48	8B	C151	11K	C306	9K	IC42	2G	Q70	9L	R35	3B	R135	8E	R236	4L	R336	7J	R439	4N
C49	8B	C152	11K	C307	7L	IC43	7M	Q71	10J	R36	3B	R136	10A	R237	3K	R337	7L	R440	3N
C50	8B	C153	1A	C308	7J	IC44	7P	Q72	10J	R37	3A	R137	10A	R238	3K	R338	9K	R441	3N
C51	8B	C154	0A	C309	0P	IC45	8M	Q74	6J	R38	4B	R138	10A	R239	3K	R339	9L	R442	4N
C52	8B	C155	0A	C310	0R	IC46	9K	Q75	10K	R39	4B	R139	11A	R240	4L	R340	9K	R443	4N
C53	9C	C156	0A	C311	5R	IC47	7K	Q76	10K	R40	5B	R140	10A	R241	3L	R341	9L	R444	4N
C54	8C	C157	1A	C312	9R	IC48	7J	Q80	5K	R41	4B	R141	10A	R242	3L	R342	9L	R445	4N
C55	10C	C158	4B	C313	1N	IC49	0A	Q81	2N	R42	5B	R142	10A	R243	3L	R343	9L	R446	3P
C56	9C	C159	2B	C314	0M	IC50	0B	Q82	2R	R43	4B	R143	10A	R244	3L	R344	9L	R447	3P
C57	9C	C160	0D	C315	9P	IC51	1G	Q83	2P	R44	4B	R144	11E	R245	3J	R345	9M	R448	3R
C58	9F	C161	0C	C317	9P	IC52	7K	Q84	2P	R45	4B	R145	11E	R246	3J	R346	9M	R449	3R
C59	8F	C162	0C	C320	8N	IC53	2N	Q85	2R	R46	4A	R146	11E	R247	3M	R347	9M	R450	3N
C60	10G	C163	0C	C321	10M	IC54	0P	Q86	2S	R47	4A	R147	11D	R248	3M	R348	8M	R451	6N
C61	11G	C164	0D	C322	11L	IC55	0M	Q87	2R	R48	4A	R148	9D	R249	2M	R349	7N	R452	6N
C62	10H	C165	2D	C323	10M	IC56	0R	Q88	1R	R49	5A	R149	9D	R250	2M	R350	7N	R453	5N
C63	6E	C166	5D	C324	7M	IC57	3P	Q89	1R	R50	5A	R150	9D	R251	2M	R351	9J	R454	5N
C64	8F	C167	1G	C325	2R	IC58	5P	Q90	0R	R51	8A	R151	9D	R252	2L	R352	9J	R455	4N
C65	11F	C168	2G	C326	1S	IC59	5R	Q91	5K	R52	8A	R152	9D	R253	2N	R353	10J	R456	3N
C66	8G	C170	2N	C327	2S	IC60	8R	Q92	5K	R53	8A	R153	9D	R254	4M	R354	9K	R457	3N
C67	8G	C171	1R	C328	6F	IC61	8P	Q93	5N	R54	8A	R154	10C	R255	4M	R355	9K	R458	3N
C68	9G	C172	1N	C340	4A	IC62	9R	Q94	7R	R55	3F	R155	10C	R256	3M	R356	11H	R459	4N
C69	9G	C173	3N	C341	4A	IC63	9P	Q95	3N	R56	3F	R156	10C	R257	3M	R357	11H	R460	6N
C70	8H	C174	2S	C342	0N	IC65	7R	Q96	4N	R57	1D	R157	11B	R258	4M	R358	10H	R461	6N
C71	6G	C175	2R	C343	11H	IC66	5E	Q97	4N	R58	1D	R158	11B	R259	3M	R359	10J	R462	5N
C72	8H	C176	2N	C344	9F	J1	7K	Q98	3R	R59	1D	R159	9B	R260	2L	R360	10J	R463	5N
C73	7H	C177	2S	C400	3J	L1	2J	Q99	6N	R60	1C	R160	5F	R261	2J	R361	9J	R464	5P
C74	7G	C178	2R	C401	5J	L2	4H	Q100	5N	R61	1C	R161	5F	R262	2H	R362	10J	R465	6P
C75	7F	C179	1P	CBM1	9B	L3	3H	Q101	6N	R62	2C	R162	9F	R263	4L	R364	11J	R466	6P
C76	7E	C180	2N	CBM2	9B	L4	3P	Q102	5P	R63	2C	R163	10F	R264	4K	R365	11J	R467	5P
C77	8F	C181	1N	CBM3	9B	L5	4P	Q103	3S	R64	2C	R164	9B	R265	4K	R366	11J	R468	5P
C78	6E	C182	1N	CBM4	9C	L6	4R	Q104	4R	R65	2C	R165	10F	R266	4J	R367	10K	R469	4P
C79	7F	C183	0N	CBM5	8F	Q1	2F	Q105	4R	R66	2D	R166	10F	R267	4J	R368	10K	R470	5P
C80	5F	C184	1M	CBM6	8G	Q2	4B	Q106	4S	R67	2D	R167	11D	R268	4K	R369	6J	R471	4P
C81	8E	C185	1M	CBM7	8G	Q3	3B	Q107	4R	R68	1E	R168	11D	R269	4J	R370	10K	R472	4P
C82	6D	C187	4K	CBM8	8G	Q4	5B	Q108	5T	R69	2D	R169	11D	R270	4J	R371	10K	R473	4R
C83	6D	C188	4K	CBM9	11P	Q5	5B	Q109	10P	R70	4E	R170	9B	R271	4J	R372	10K	R474	5R
C84	5C	C189	3N	CBM10	11M	Q6	4D	Q110	3R	R71	3E	R171	7C	R272	4J	R373	10L	R475	5P
C85	6C	C190	3N	CN5	0M	Q7	3D	Q111	6P	R72	3D	R172	7D	R273	3J	R374	10L	R476	4P

R477	4P	R487	6S	R497	11N	R507	6J	R517	6M	R527	10P	R537	11L	R551	1J	R561	10S	R573	2K
R478	4R	R488	8R	R498	3S	R508	6K	R518	6L	R528	9N	R538	8P	R552	1H	R562	10S	R574	1K
R479	4R	R489	7S	R499	3R	R509	6K	R519	5L	R529	9N	R539	11M	R553	1J	R563	5G	R575	4H
R480	4S	R490	7S	R500	3R	R510	6K	R520	5L	R530	9R	R540	10L	R554	9P	R564	5H	R576	4J
R481	5T	R491	10N	R501	4S	R511	6J	R521	5L	R531	9R	R541	8P	R555	9R	R565	9K	R577	4J
R482	5T	R492	10N	R502	4R	R512	7J	R522	5L	R532	9R	R542	8N	R556	9P	R566	10M	R600	7B
R483	6T	R493	10N	R503	3R	R513	6M	R523	9R	R533	8R	R543	9N	R557	9R	R567	10N	R601	10C
R484	6T	R494	10S	R504	3R	R514	6M	R524	10R	R534	8R	R544	8N	R558	8R	R568	9N	R602	6K
R485	6T	R495	10S	R505	3R	R515	6M	R525	9N	R535	8S	R545	10M	R559	8R	R571	9N	R603	1R
R486	6S	R496	10N	R506	4R	R516	5M	R526	10N	R536	10L	R546	10M	R560	10S	R572	2K	R604	8N

R605	8N	R614	8P
R606	9N	R615	8P
R607	10M	R616	8P
R608	9M	R617	10
R609	11L	R618	10
R610	11L	R619	10
R611	11K	R620	7J
R612	10M	R621	10
R613	10M	R622	6J



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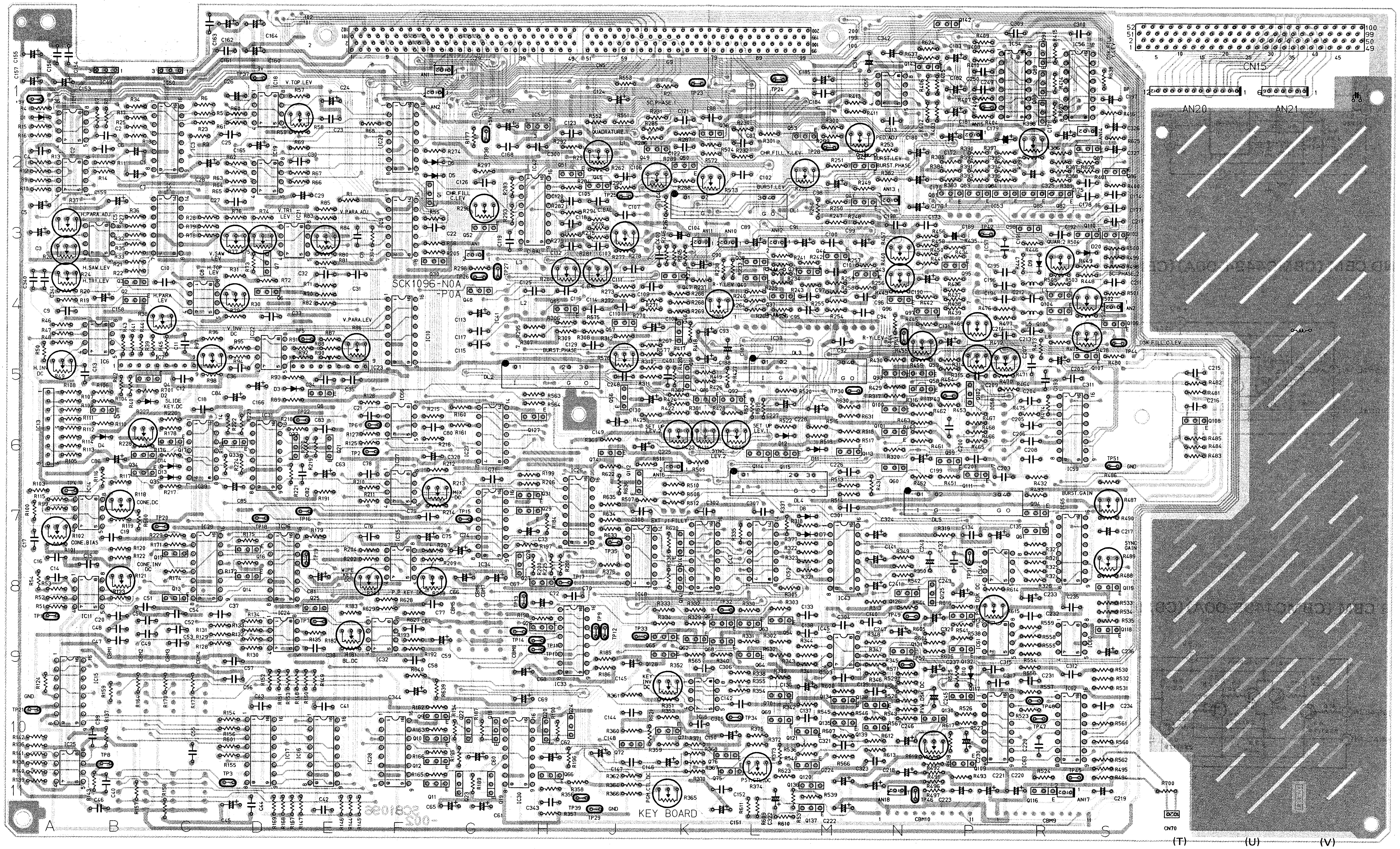
R477	4P	R487	6S	R497	11N	R507	6J	R517	6M	R527	10P	R537	11L	R551	1J	R561	10S	R573	2K
R478	4R	R488	8R	R498	3S	R508	6K	R518	6L	R528	9N	R538	8P	R552	1H	R562	10S	R574	1K
R479	4R	R489	7S	R499	3R	R509	6K	R519	5L	R529	9N	R539	11M	R553	1J	R563	5G	R575	4H
R480	4S	R490	7S	R500	3R	R510	6K	R520	5L	R530	9R	R540	10L	R554	9P	R564	5H	R576	4J
R481	5T	R491	10N	R501	4S	R511	6J	R521	5L	R531	9R	R541	8P	R555	9R	R565	9K	R577	4J
R482	5T	R492	10N	R502	4R	R512	7J	R522	5L	R532	9R	R542	8N	R556	9P	R566	10M	R600	7B
R483	6T	R493	10N	R503	3R	R513	6M	R523	9R	R533	8R	R543	9N	R557	9R	R567	10N	R601	10C
R484	6T	R494	10S	R504	3R	R514	6M	R524	10R	R534	8R	R544	8N	R558	8R	R568	9N	R602	6K
R485	6T	R495	10S	R505	3R	R515	6M	R525	9N	R535	8S	R545	10M	R559	8R	R571	9N	R603	1R
R486	6S	R496	10N	R506	4R	R516	5M	R526	10N	R536	10L	R546	10M	R560	10S	R572	2K	R604	8N

R605	8N	R614	8P	R623	10L	R632	9L	R700	11S	TP8	10A	TP17	8H	TP26	3G	TP35	7J	TP44	4S
R606	9N	R615	8P	R624	0N	R633	7J	R701	5B	TP9	8H	TP18	7D	TP27	3G	TP36	1A	TP45	10R
R607	10M	R616	8P	R625	1S	R634	7J	TP1	8A	TP10	9H	TP19	7D	TP28	2M	TP37	1D	TP46	11N
R608	9M	R617	10N	R626	2R	R635	7J	TP2	6E	TP11	8H	TP20	7B	TP29	11H	TP38	1G	TP47	10R
R609	11L	R618	10N	R627	8F	R636	6J	TP3	11C	TP12	8H	TP21	10A	TP30	5M	TP39	11H	TP48	9R
R610	11L	R619	10N	R628	8F	R637	0N	TP4	6A	TP13	8G	TP22	5D	TP31	7P	TP40	1P	TP49	8N
R611	11K	R620	7J	R629	8F	R638	0R	TP5	4D	TP14	8G	TP23	1K	TP32	8K	TP41	4N	TP50	9N
R612	10M	R621	10J	R630	5M	R639	9F	TP6	5E	TP15	7G	TP24	1L	TP33	8J	TP42	3P	TP51	6S
R613	10M	R622	6J	R631	5M	R640	9F	TP7	8D	TP16	7D	TP25	2J	TP34	10K	TP43	5N		



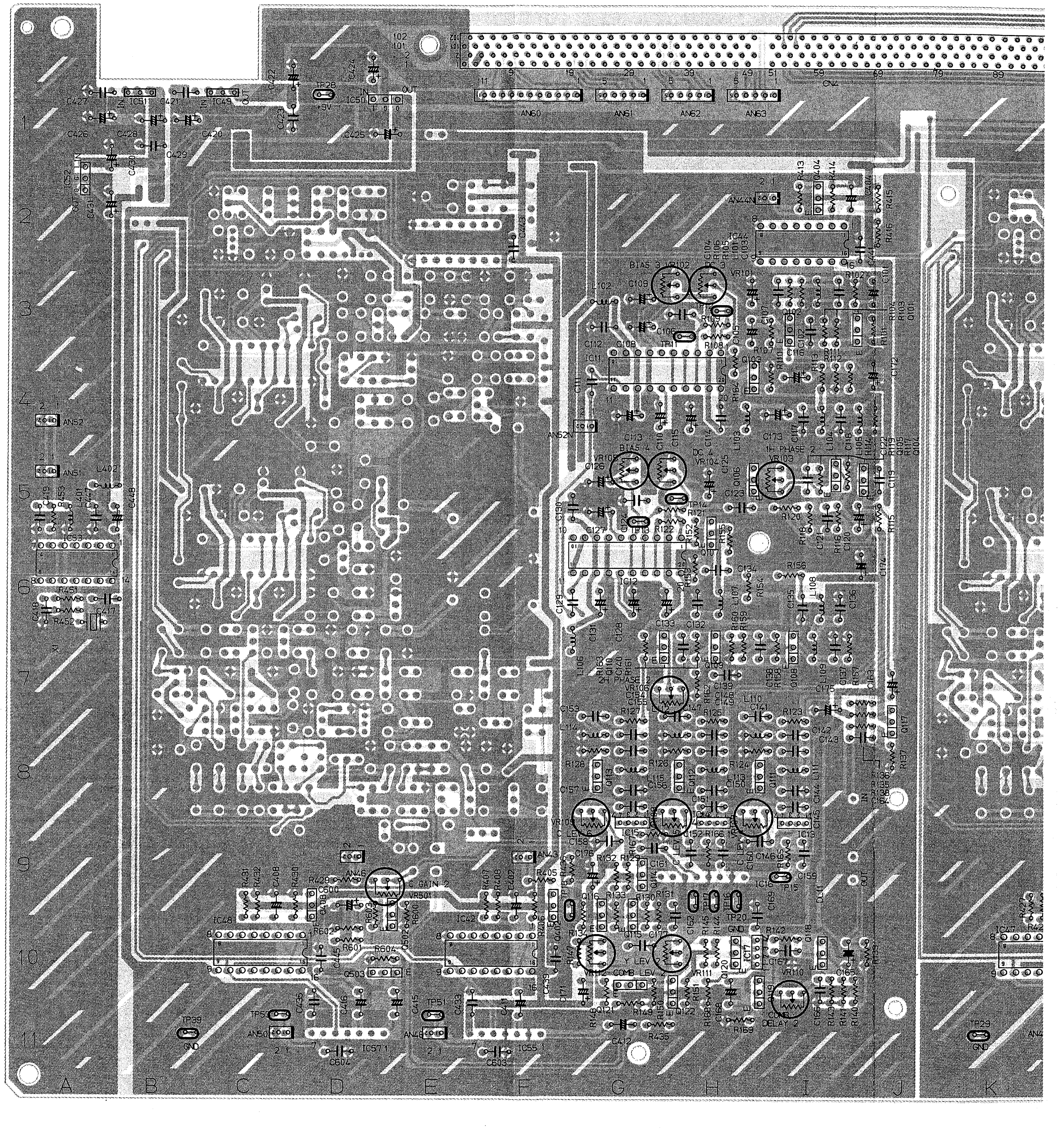
6. 13-N Y/C SEPA CIRCUIT BOARD (NTSC)

- **Parts Location Table of Y/C SEPA board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

AN41	9N	C103	2I	C227	6K	C356	7E	IC35	2B	Q107	5H	R11	3R	R143	10I	R276	7M	R386	2D
AN42N	2R	C104	2H	C228	5J	C357	7E	IC41	10N	Q108	7H	R12	3R	R144	10H	R277	7N	R387	2D
AN42P	2M	C105	3H	C229	5K	C358	8D	IC42	10F	Q109	7H	R13	3R	R145	10G	R278	8N	R388	2C
AN43	9F	C106	3G	C230	6K	C359	8E	IC43	2R	Q110	7G	R14	4S	R147	10F	R279	8M	R389	2C
AN44N	2H	C107	3H	C231	6L	C360	2E	IC44	2I	Q111	8H	R15	5S	R148	10F	R280	8N	R390	2B
AN44P	2D	C108	3G	C232	6K	C361	2F	IC45	2N	Q112	8G	R16	5R	R149	10G	R281	7M	R391	7D
AN45	9L	C109	3G	C233	6L	C362	4F	IC46	2E	Q113	8F	R17	4R	R150	10G	R282	7N	R401	9N
AN46	9D	C110	4G	C234	6M	C363	6D	IC47	10L	Q114	9G	R18	5R	R151	10G	R283	8M	R402	9N
AN47	11M	C111	3F	C235	5L	C364	7F	IC48	10C	Q115	9G	R19	4R	R152	5G	R284	8M	R403	9N
AN48	11E	C112	3G	C236	6L	C365	8E	IC49	0B	Q116	9F	R20	5R	R153	5G	R285	2L	R404	9N
AN49	11K	C113	4G	C237	7L	C366	7B	IC50	1D	Q117	7I	R21	5P	R154	6H	R286	2L	R405	9F
AN50	11C	C114	4H	C238	7M	C367	2D	IC51	0A	Q118	10I	R22	5P	R155	5H	R287	2L	R406	9F
AN51	5A	C115	4G	C239	7L	C368	2C	IC52	2A	Q119	10H	R23	7R	R156	6I	R288	2L	R407	9E
AN51N	4O	C116	4I	C240	7L	C369	2C	IC53	5A	Q120	10H	R24	8R	R157	6I	R289	2L	R408	9E
AN51P	4J	C117	4I	C241	7K	C370	2C	IC54	11N	Q121	10G	R25	7P	R158	6H	R290	2K	R409	1R
AN52	4A	C118	4I	C242	7K	C371	2C	IC55	11F	Q122	10G	R26	8P	R159	6H	R291	7L	R410	1R
AN52N	4F	C119	4I	C243	6J	C401	9N	IC56	11L	Q201	3N	R27	7O	R160	6H	R301	2F	R411	1S
AN52P	4B	C120	5I	C244	6K	C402	9E	IC57	11D	Q202	3L	R28	8O	R161	6G	R302	2F	R412	2S
AN60	0F	C121	5I	C245	7L	C403	2R	IC58	0M	Q203	3M	R29	9O	R162	7G	R303	3F	R413	1H
AN61	0G	C122	4I	C246	7K	C404	2I	IC59	0O	Q204	2L	R30	9O	R163	6G	R304	3E	R414	1I
AN62	0G	C123	5H	C247	8J	C405	2N	L1	2R	Q205	2K	R31	9O	R164	3H	R305	3E	R415	1I
AN63	0H	C124	5G	C248	8K	C406	2E	L2	3O	Q206	4L	R32	9O	R165	9H	R306	3D	R416	2I
C1	3S	C125	5H	C249	8L	C407	9K	L3	4P	Q207	4L	R33	9O	R166	9H	R307	3D	R417	1M
C2	3R	C126	5F	C250	7L	C408	9C	L4	4R	Q208	6L	R34	10N	R167	8G	R308	3D	R418	1M
C3	2R	C127	5F	C251	7M	C409	10N	L5	4R	Q209	5L	R35	7S	R168	10H	R309	2D	R419	1N
C4	2R	C128	6G	C252	3N	C410	10O	L6	6N	Q210	7L	R36	7S	R169	10H	R310	2C	R420	2N
C5	3P	C129	6F	C253	3N	C411	10F	L7	6P	Q211	7L	R37	7S	R201	2N	R311	2C	R421	1E
C6	3P	C130	5F	C254	4M	C412	10G	L8	6R	Q212	7K	R38	7S	R202	2N	R312	2C	R422	1E
C7	3P	C131	6F	C255	6N	C413	10L	L9	6R	Q213	7J	R39	10S	R203	3N	R313	2B	R423	1F
C8	3O	C132	6G	C256	7M	C414	10L	L10	7R	Q214	6K	R40	10R	R204	3N	R314	3C	R424	2F
C9	3O	C133	6G	C257	7N	C415	10D	L11	8R	Q215	6K	R41	10R	R205	3M	R315	3C	R425	9L
C10	4O	C134	6H	C258	8M	C416	10D	L12	7P	Q216	7K	R42	10R	R206	3M	R316	3C	R426	9K
C11	3O	C135	6I	C259	8M	C417	6A	L13	8P	Q217	7K	R43	10R	R207	3M	R317	3D	R427	9K
C12	3O	C136	6I	C260	2M	C418	6A	L14	7O	Q218	8J	R44	10P	R208	3L	R318	3D	R428	9K
C13	4O	C137	6I	C261	2N	C419	5A	L15	8O	Q219	8K	R45	10O	R209	2L	R319	4D	R429	9D
C14	4P	C138	6H	C262	4N	C420	1B	L101	2I	Q220	8K	R47	10N	R210	2L	R320	5C	R430	9C
C15	4P	C139	7H	C263	6L	C421	0B	L102	3G	Q221	8K	R48	10O	R211	2K	R321	5C	R431	9C
C16	4R	C140	6G	C264	7N	C422	0C	L103	4H	Q222	8L	R49	10O	R212	2K	R322	5C	R432	9C
C17	4R	C141	7H	C265	8N	C423	1C	L104	4I	Q223	8L	R50	10O	R213	2K	R323	5D	R433	10O
C18	4R	C142	7I	C266	7J	C424	0D	L105	4I	Q224	8M	R51	10P	R214	3L	R324	6D	R434	9N
C19	4S	C143	8I	C267	2L	C425	1D	L106	6F	Q225	4N	R52	6P	R215	3L	R325	5D	R435	10G
C20	5R	C144	8I	C268	2L	C426	1A	L107	6H	Q226	4M	R53	5R	R216	3L	R326	5D	R436	9F
C21	5R	C145	8I	C269	2K	C427	0A	L108	6I	Q227	7N	R54	5R	R217	3L	R327	6D	R437	9M
C22	5R	C146	9H	C270	2K	C428	1B	L109	6I	Q228	7N	R55	5R	R218	3L	R328	6D	R438	9M
C23	5P	C147	7G	C271	2L	C429	1A	L110	7H	Q229	8M	R56	5R	R219	4L	R329	6D	R439	9E
C24	5O	C148	7H	C301	3E	C430	1A	L111	8I	Q230	8M	R57	6R	R220	5L	R330	7D	R440	9D
C25	5P	C149	8H	C302	3E	C431	2A	L112	7G	Q231	2L	R58	6R	R221	5L	R331	7D	R441	0O
C26	5O	C150	8H	C303	2E	C432	10M	L113	8H	Q301	3E	R59	6P	R222	5L	R332	7D	R442	0O
C27	5O	C151	8H	C304	3E	C433	10E	L114	7F	Q302	3D	R60	6P	R223	5L	R333	7C	R443	0P
C28	6O	C152	9G	C305	3D	C434	10L	L115	8G	Q303	3D	R61	6P	R224	6L	R334	7C	R444	0P
C29	6N	C153	7F	C306	2D	C435	10C	L201	2M	Q304	2C	R62	7P	R225	5L	R335	7C	R445	0N
C30	5N	C154	7G	C307	2D	C436	0N	L202	2M	Q305	2B	R63	6O	R226	5M	R336	7C	R446	0N
C31	6O	C155	8G	C308	3D	C437	0O	L203	3K	Q306	4D	R64	3P	R227	6M	R337	7B	R447	0N
C32	6P	C156	8G	C309	3C	C438	10N	L204	4L	Q307	4D	R65	9R	R228	6L	R338	6B	R448	0M
C33	6O	C157	8G	C310	3D	C439	10F	L205	4M	Q308	6D	R66	9P	R229	6L	R339	7B	R449	0L
C34	5R	C158	9G	C311	3C	C440	2R	L206	5K	Q309	5D	R67	8P	R230	7M	R340	6C	R450	0L
C35	6R	C159	9I	C312	3C	C441	2I	L207	6L	Q310	7D	R68	10P	R231	7L	R341	6B	R451	6A
C36	6R	C160	9H	C313	4C	C442	2N	L208	4L	Q311	7C	R69	10P	R232	7L	R342	6C	R452	6A
C37	6R	C161	9G	C314	3B	C443	2E	L209	7M	Q312	7B	R101	3I	R233	7L	R343	6C	R453	5A
C38	6P	C162	9G	C315	3B	C444	10L	L210	3M	Q313	7B	R102	2I	R234	7L	R344	6C	R460	0M
C39	7P	C163	7I	C316	4B	C445	10C	L301	2E	Q314	6C	R103	3I	R235	7K	R345	7C	R461	0N
C40	6P	C164	7I	C317	4C	C447	5A	L302	2E	Q315	6C	R104	3I	R236	7K	R346	7C	R500	9M
C41	7R	C165	10I	C318	4C	C448	5A	L303	3B	Q316	7C	R105	2H	R237	7J	R347	7B	R501	10L
C42	7R	C166	10I	C319	3D	C500	9L	L304	4D	Q317	7B	R106	2H	R238	6J	R348	7B	R502	9L
C43	8R	C167	10H	C320	4E	C600	9D	L305	4D	Q318	8B	R107	3H	R239	7J	R349	7B	R503	9L
C44	8R	C168	10H	C321	4D	C601	11N	L306	5B	Q319	8C	R108	3H	R240	6K	R350	7C	R504	10M
C45	8R	C169	9H	C322	5D	C602	11L	L307	6D	Q320	8B	R109	3H	R241	6K	R351	7B	R600	9D
C46	9R	C171	10F	C323	5C	C603	11E	L308	4D	Q321	8C	R110	3H	R242	6K	R352	8C	R601	10D
C47	7P	C172	4I	C324	5D	C604	11D	L309	7D	Q322	8C	R111	3I	R243	6L	R353	7C	R602	9D
C48	7P	C173	4H	C325	5C	CN4	0L	L310	3E	Q323	8D	R112	3I	R244	6L	R354	7C	R603	9D
C49	8P	C174	6I	C326	5C	CN14	0P	L401	5A	Q324	8D	R113	3I	R245	7K	R356	7C	R604	10D
C50	8P	C175	7I	C327	6C	DL1	8R	L402	5A	Q325	4F	R114	4I	R246	7K	R357	8C	TP1	3P
C51	8P	C176	9F	C328	5B	DL11	8I	Q1	3R	Q326	4E	R115	5I	R247	7K	R358	8C	TP2	3P
C52	9P	C177	10G	C329	5B	DL21	5M	Q2	3R	Q327	7E	R116	5I	R248	7J	R359	8C	TP3	5O
C53	7O	C201	3N	C330	6B	DL22	5N	Q3	4P	Q328	7F	R117	4I	R249	7J	R360	8D	TP4	5P
C54	7O	C202	3M	C331	6C	DL31	5E	Q4	5S	Q329	8E	R118	5I	R250	7K	R361	8D	TP5	9R
C55	8O	C203	2M	C332	6C	DL32	5F	Q5	5R	Q330	8E	R119	4I	R251	7K	R362	7D	TP6	9P
C56	8O	C204	3M	C333	6D	IC1	3P	Q6	5R	Q331	2D	R120	5H	R252	8K	R363	7D	TP7	9P
C57	8O	C205	3M	C334	6D	IC2	5P	Q7	6R	Q401	9N	R121	5G	R253	7K	R364	8D	TP8	9N
C58	9O	C206	2L	C335	5D	IC3	8R	Q8	7R	Q402	9F	R122	5G	R254	7K	R365	3F	TP10	9P
C59	9R	C207	2L	C336	6D	IC4	8P	Q9	7P	Q403	2R	R123	7I	R256	7K	R366	3F	TP11	3G
C60	9P	C208	3L	C337	7D	IC5	8O	Q10	7O	Q404	2I	R124	8H	R257	8K	R367	3E	TP12	3H
C61	9P	C209	3K	C338	7D	IC6	9O	Q11	8P	Q405	2M	R125	7H	R258	8L	R368	4E	TP13	5G
C62	9P	C210	3L	C339	7D	IC7	10P	Q12	8P	Q406	2E	R126	8G	R259	8L	R369	4E	TP14	5G
C63	7S	C211	3K	C340	7D	IC11	3H	Q13	8O	Q407	9L	R127	7G	R260	8L	R370	4E	TP15	9H
C64	7S	C212	3K	C341	7C	IC12	5G	Q14	9O	Q408	9C	R128	8F	R261	8M	R371	4E	TP16	9H
C65	10R	C213	4K	C342	7B	IC13	8I	Q15	9O	Q500	10L	R129	9G	R262	7M	R372	6E	TP17	9G
C66	10R	C214	3J	C343	6B	IC14	8H	Q16	9O	Q501	10L	R130	9G	R263	7M	R373	7E	TP18	9F
C67	10R	C215	3K	C344	6B	IC15	8G	Q17	7S	Q502	9D	R131	9G	R264	8M	R374	7E	TP20	9H
C68	10P	C216	4K	C345	7C	IC16	9G	Q18	10R	Q503	10D	R132	9G	R265	3N	R375	7E	TP21	4K
C69	9P	C217	4L	C346	7C	IC17	10H	Q19	10P	R1	3S	R133	9G	R266	3N	R376	7E	TP22	6K
C71	10O	C218	4K	C347	8B	IC21	2L	Q20	10P	R2	2R	R134	9F	R267	3N	R377	7F	TP23	5L
C72	4S	C219	3L	C348	8C	IC22	3L	Q21	10O	R3	3R	R135	7I	R268	4M	R378	8F	TP24	8L
C73	4R	C220	4M	C349	8C	IC23	5L	Q22	10P	R4	3R	R136	7I	R269	4M	R379	8E	TP25	8L
C74	6S	C221	4L	C350	7D	IC24	7L	Q101	3I	R5	2R	R137	7I	R270	4N	R380	8E	TP27	4L
C75	7R	C222	5L	C351	7E	IC25	2K	Q102	3H	R6	2R	R138	7I	R271	4N	R381	7E	TP28	0C
C76	9O	C223	5K	C352	3E	IC31	2D	Q103	4H	R7	3R	R139	10I	R272	6N	R382	7E	TP29	11K
C77	9O	C224	5L	C353	3E	IC32	3C	Q104	5I	R8	3P	R140	10I	R273	7M	R383	8E	TP31	4C
C101	3I	C225	5K	C354	4E	IC33	5C	Q105	5I	R9	3P	R141	10I	R274	7M	R384	8E	TP32	6C
C102	3I	C226	5K	C355	6E	IC34	7D	Q106	5H	R10	3R	R142	10H	R275	7N	R385	2D	TP33	5D

TP34	8C	TP39	11B	TP51	10E	VR1	3P	VR4	5P	VR7	8R	VR10	10R	VR101	3H	VR104	5G	VR107	8H
TP35	8D	TP40	1E	TP52	10K	VR2	3P	VR5	5O	VR8	8P	VR11	10O	VR102	3G	VR105	5G	VR108	8G
TP37	4C	TP41	2B	TP53	10C	VR3	5R	VR6	7P	VR9	8O	VR12	10O	VR103	5H	VR106	7G	VR109	8F
TP38	1B	TP50	10M																

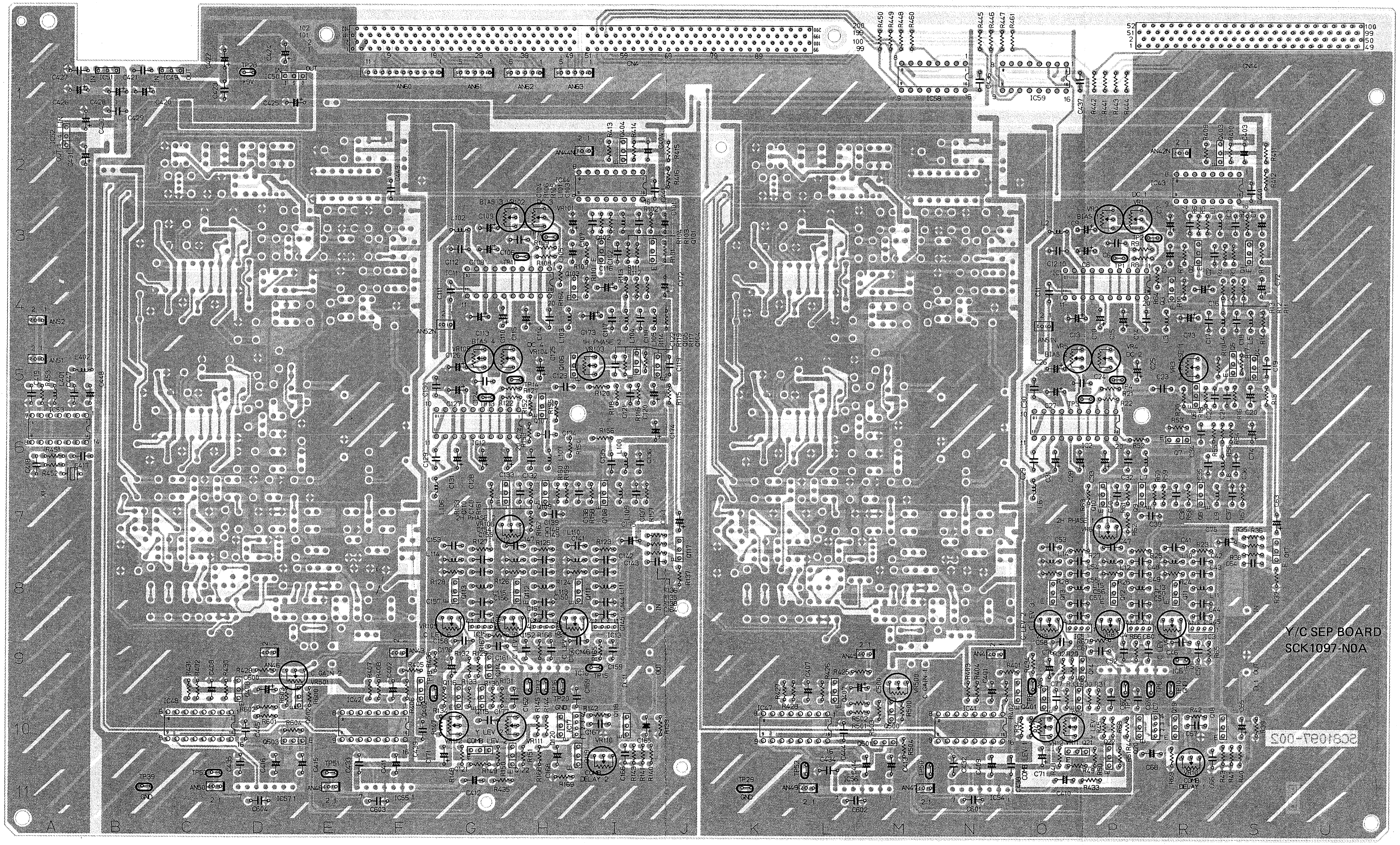
VR110	10I	VR201
VR111	10G	VR202
VR112	10F	VR203



TP34	8C	TP39	11B	TP51	10E	VR1	3P	VR4	5P	VR7	8R	VR10	10R	VR101	3H	VR104	5G	VR107	8H
TP35	8D	TP40	1E	TP52	10K	VR2	3P	VR5	5O	VR8	8P	VR11	10O	VR102	3G	VR105	5G	VR108	8G
TP37	4C	TP41	2B	TP53	10C	VR3	5R	VR6	7P	VR9	8O	VR12	10O	VR103	5H	VR106	7G	VR109	8F
TP38	1B	TP50	10M																

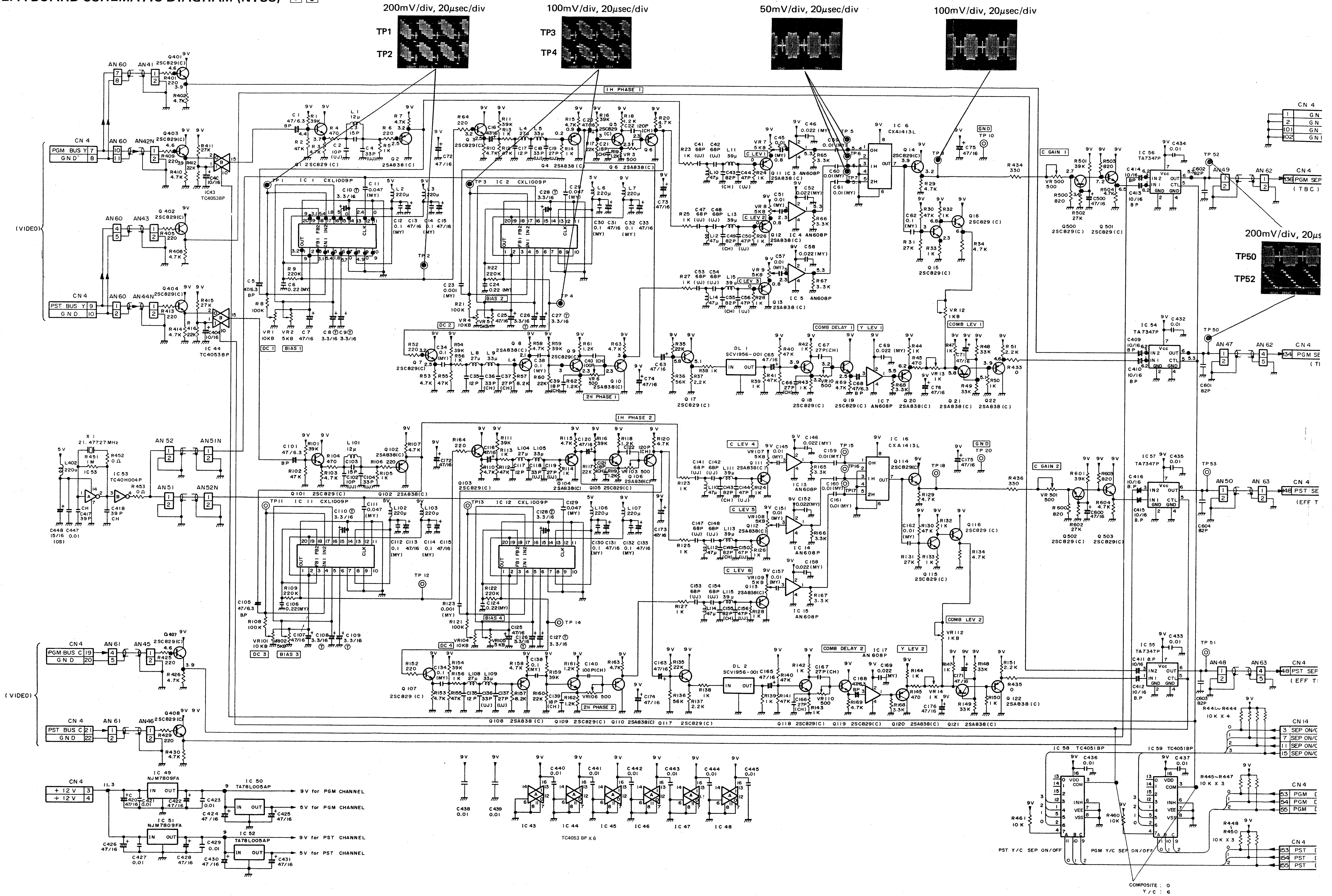
VR110	10I	VR201	3L	VR204	5L	VR207	7M	VR210	8N	VR301	3C	VR304	5C	VR307	7E	VR310	8E	VR500	9M
VR111	10G	VR202	3K	VR205	5K	VR208	8L	VR211	2K	VR302	3C	VR305	5C	VR308	8D	VR311	2C	VR501	9D
VR112	10F	VR203	4M	VR206	6M	VR209	7N	VR212	8N	VR303	4D	VR306	6D	VR309	7E	VR312	8E	X1	6A

ation in

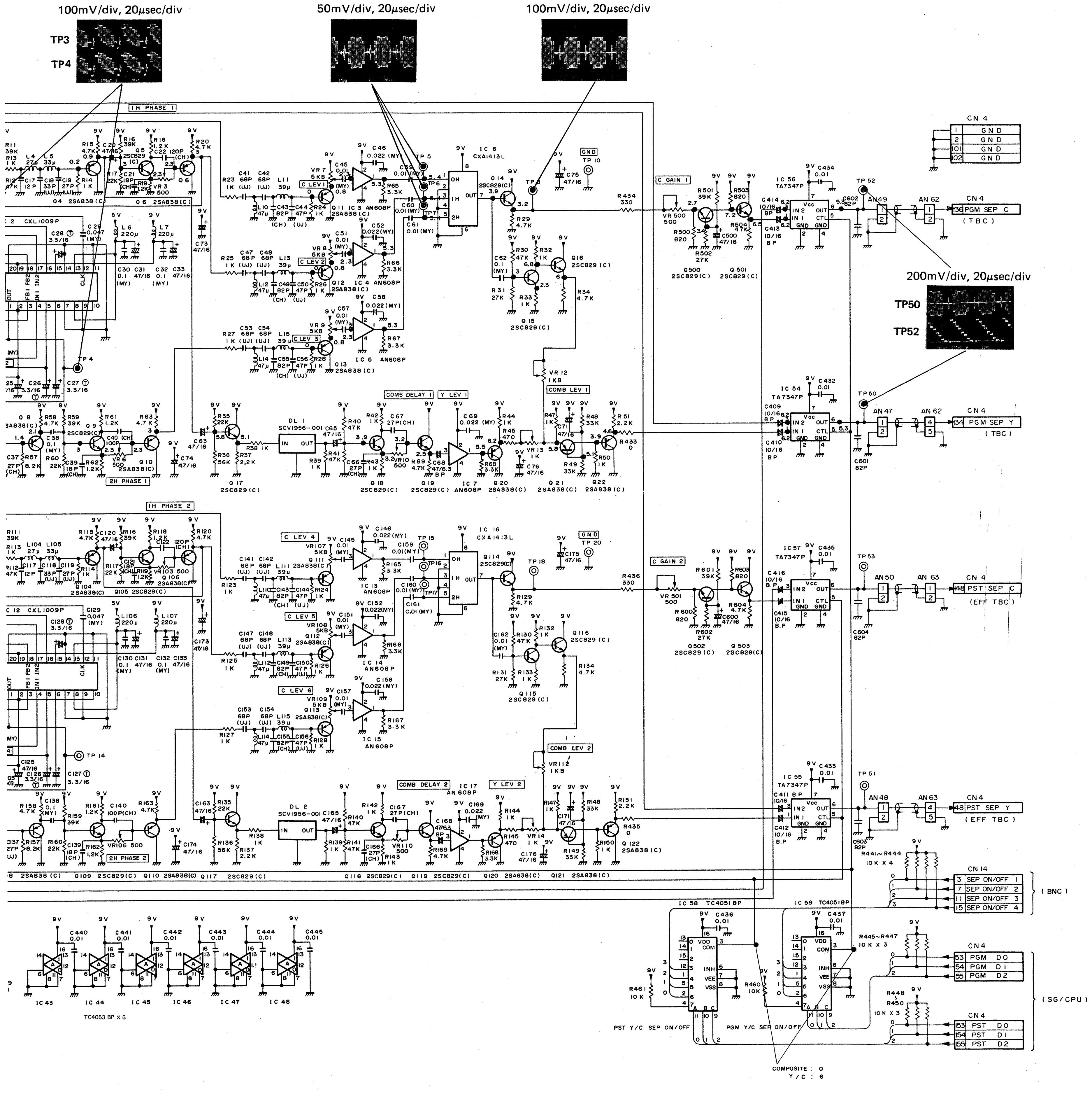

Y/C SEP BOARD
SCK1097-N0A
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
R
S
U
1
2
3
4
5
6
7
8
9
10
11
IC58
IC59
CN14
AN50
AN51
AN52
AN53
IC50
IC51
IC52
IC53
IC54
IC55
IC56
IC57
TP26
TP39
TP29
+9V
GND
1H PHASE
2H PHASE
BIAS
C GAIN 1
C GAIN 2
Y LEV
COMB LEV
COMB DELAY
SC1097-002

6.14-N Y/C SEPA BOARD SCHEMATIC DIAGRAM (NTSC) 1 0

INPUT1 : COMPOSITE COLOR BARS



200mV/div, 20μsec/div
TP1
TP2
100mV/div, 20μsec/div
TP3
TP4
50mV/div, 20μsec/div
100mV/div, 20μsec/div
200mV/div, 20μs
TP50
TP52
CN 4
PGM BUS Y 7
GND 8
PST BUS Y 9
GND 10
(VIDEO)
PGM BUS C 19
GND 20
PST BUS C 21
GND 22
+12V 3
+12V 4
AN 60
AN 41
AN 42N
AN 43
AN 44N
AN 45
AN 46
AN 52
AN 51N
AN 51
AN 52N
AN 61
AN 47
AN 48
AN 49
AN 50
AN 62
AN 63
IC 1 CXL1009P
IC 2 CXL1009P
IC 11 CXL1009P
IC 12 CXL1009P
IC 3 AN608P
IC 4 AN608P
IC 5 AN608P
IC 7 AN608P
IC 13 AN608P
IC 14 AN608P
IC 15 AN608P
IC 17 AN608P
IC 6 CXA1413L
IC 16 CXA1413L
IC 43 TC4053BP
IC 44 TC4053BP
IC 53 TC40H004P
IC 54 TA7347P
IC 55 TA7347P
IC 56 TA7347P
IC 57 TA7347P
IC 58 TC4051BP
IC 59 TC4051BP
IC 49 NJM7809FA
IC 51 NJM7809FA
IC 50 TA78L005AP
IC 52 TA78L005AP
X1 21.47727MHz
DL 1 SCV1956-001
DL 2 SCV1956-001
1H PHASE 1
1H PHASE 2
2H PHASE 1
2H PHASE 2
DC 1
DC 2
DC 3
DC 4
BIAS 1
BIAS 2
BIAS 3
BIAS 4
C LEV 1
C LEV 2
C LEV 3
C LEV 4
C LEV 5
C LEV 6
COMB DELAY 1
COMB DELAY 2
Y LEV 1
Y LEV 2
COMB LEV 1
COMB LEV 2
C GAIN 1
C GAIN 2
GND
TP 5
TP 6
TP 7
TP 8
TP 10
TP 11
TP 12
TP 13
TP 14
TP 15
TP 16
TP 17
TP 18
TP 20
TP 50
TP 51
TP 52
TP 53
PGM SEP (TBC)
PST SEP
(EFF T
SEP ON/O
PGM
PST
9V for PGM CHANNEL
5V for PGM CHANNEL
9V for PST CHANNEL
5V for PST CHANNEL
TC4053 BP X 6
PST Y/C SEP ON/OFF
PGM Y/C SEP ON/OFF
COMPOSITE : 0
Y/C : 6
R441~R444 10K X 4
R445~R447 10K X 3
R448~R450 10K X 3

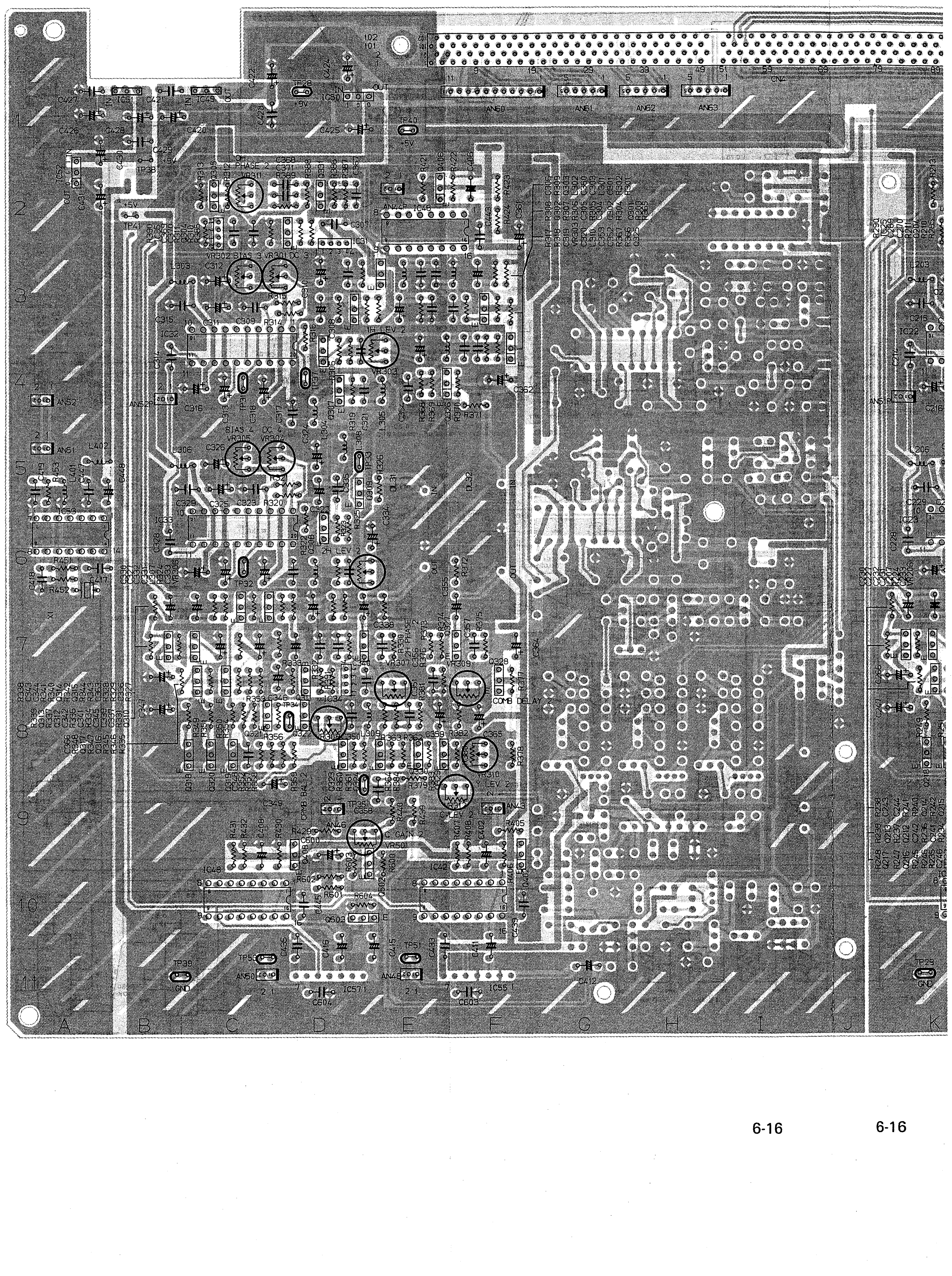

100mV/div, 20μsec/div
TP3
TP4
50mV/div, 20μsec/div
100mV/div, 20μsec/div
200mV/div, 20μsec/div
TP50
TP52
1H PHASE 1
1H PHASE 2
2H PHASE 1
2H PHASE 2
C LEV 1
C LEV 2
C LEV 3
C LEV 4
C LEV 5
C LEV 6
COMB DELAY 1
COMB DELAY 2
Y LEV 1
Y LEV 2
COMB LEV 1
COMB LEV 2
C GAIN 1
C GAIN 2
GND
CXL1009P
IC 6 CXA1413L
IC 16 CXA1413L
IC 3 AN608P
IC 4 AN608P
IC 5 AN608P
IC 7 AN608P
IC 13
IC 14 AN608P
IC 15 AN608P
IC 17 AN608P
DL 1 SCV1956-001
DL 2 SCV1956-001
IC 54 TA7347P
IC 55 TA7347P
IC 56 TA7347P
IC 57 TA7347P
IC 58 TC4051BP
IC 59 TC4051BP
IC 43
IC 44
IC 45
IC 46
IC 47
IC 48
TC4053 BP X 6
CN 4
GND
PGM SEP C
(TBC)
PGM SEP Y
PST SEP C
(EFF TBC)
PST SEP Y
CN 14
SEP ON/OFF 1
SEP ON/OFF 2
SEP ON/OFF 3
SEP ON/OFF 4
(BNC)
PGM D0
PGM D1
PGM D2
PST D0
PST D1
PST D2
(SG/CPU)
R441~R444 10K X 4
R445~R447 10K X 3
R448~R450 10K X 3
PST Y/C SEP ON/OFF
PGM Y/C SEP ON/OFF
COMPOSITE : 0
Y/C : 6
AN47
AN48
AN49
AN50
AN62
AN63
TP 5
TP 6
TP 7
TP 8
TP 10
TP 14
TP 15
TP 16
TP 17
TP 18
TP 20
TP 50
TP 51
TP 52
TP 53

6.13-P Y/C SEPA CIRCUIT BOARD (PAL)

- **Parts Location Table of Y/C SEPA board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

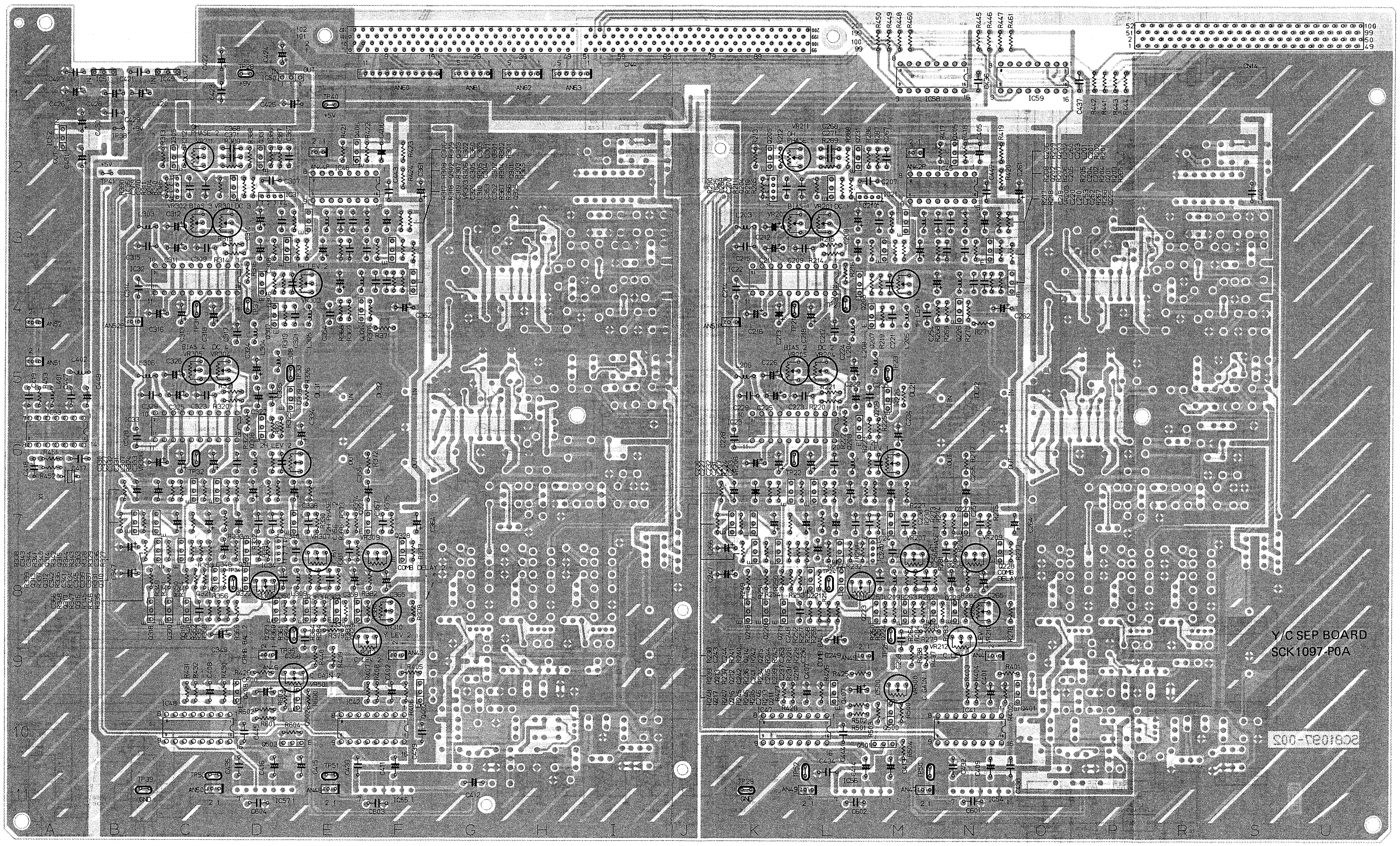
AN41	9N	C103	2I	C227	6K	C356	7E	IC35	2B	Q107	5H	R11	3R	R143	10I	R276	7M	R386	2D
AN42N	2R	C104	2H	C228	5J	C357	7E	IC41	10N	Q108	7H	R12	3R	R144	10H	R277	7N	R387	2D
AN42P	2M	C105	3H	C229	5K	C358	8D	IC42	10F	Q109	7H	R13	3R	R145	10G	R278	8N	R388	2C
AN43	9F	C106	3G	C230	6K	C359	8E	IC43	2R	Q110	7G	R14	4S	R147	10F	R279	8M	R389	2C
AN44N	2H	C107	3H	C231	6L	C360	2E	IC44	2I	Q111	8H	R15	5S	R148	10F	R280	8N	R390	2B
AN44P	2D	C108	3G	C232	6K	C361	2F	IC45	2N	Q112	8G	R16	5R	R149	10G	R281	7M	R391	7D
AN45	9L	C109	3G	C233	6L	C362	4F	IC46	2E	Q113	8F	R17	4R	R150	10G	R282	7N	R401	9N
AN46	9D	C110	4G	C234	6M	C363	6D	IC47	10L	Q114	9G	R18	5R	R151	10G	R283	8M	R402	9N
AN47	11M	C111	3F	C235	5L	C364	7F	IC48	10C	Q115	9G	R19	4R	R152	5G	R284	8M	R403	9N
AN48	11E	C112	3G	C236	6L	C365	8E	IC49	0B	Q116	9F	R20	5R	R153	5G	R285	2L	R404	9N
AN49	11K	C113	4G	C237	7L	C366	7B	IC50	1D	Q117	7I	R21	5P	R154	6H	R286	2L	R405	9F
AN50	11C	C114	4H	C238	7M	C367	2D	IC51	0A	Q118	10I	R22	5P	R155	5H	R287	2L	R406	9F
AN51	5A	C115	4G	C239	7L	C368	2C	IC52	2A	Q119	10H	R23	7R	R156	6I	R288	2L	R407	9E
AN51N	4O	C116	4I	C240	7L	C369	2C	IC53	5A	Q120	10H	R24	8R	R157	6I	R289	2L	R408	9E
AN51P	4J	C117	4I	C241	7K	C370	2C	IC54	11N	Q121	10G	R25	7P	R158	6H	R290	2K	R409	1R
AN52	4A	C118	4I	C242	7K	C371	2C	IC55	11F	Q122	10G	R26	8P	R159	6H	R291	7L	R410	1R
AN52N	4F	C119	4I	C243	6J	C401	9N	IC56	11L	Q201	3N	R27	7O	R160	6H	R301	2F	R411	1S
AN52P	4B	C120	5I	C244	6K	C402	9E	IC57	11D	Q202	3L	R28	8O	R161	6G	R302	2F	R412	2S
AN60	0F	C121	5I	C245	7L	C403	2R	IC58	0M	Q203	3M	R29	9O	R162	7G	R303	3F	R413	1H
AN61	0G	C122	4I	C246	7K	C404	2I	IC59	0O	Q204	2L	R30	9O	R163	6G	R304	3E	R414	1I
AN62	0G	C123	5H	C247	8J	C405	2N	L1	2R	Q205	2K	R31	9O	R164	3H	R305	3E	R415	1I
AN63	0H	C124	5G	C248	8K	C406	2E	L2	3O	Q206	4L	R32	9O	R165	9H	R306	3D	R416	2I
C1	3S	C125	5H	C249	8L	C407	9K	L3	4P	Q207	4L	R33	9O	R166	9H	R307	3D	R417	1M
C2	3R	C126	5F	C250	7L	C408	9C	L4	4R	Q208	6L	R34	10N	R167	8G	R308	3D	R418	1M
C3	2R	C127	5F	C251	7M	C409	10N	L5	4R	Q209	5L	R35	7S	R168	10H	R309	2D	R419	1N
C4	2R	C128	6G	C252	3N	C410	10O	L6	6N	Q210	7L	R36	7S	R169	10H	R310	2C	R420	2N
C5	3P	C129	6F	C253	3N	C411	10F	L7	6P	Q211	7L	R37	7S	R201	2N	R311	2C	R421	1E
C6	3P	C130	5F	C254	4M	C412	10G	L8	6R	Q212	7K	R38	7S	R202	2N	R312	2C	R422	1E
C7	3P	C131	6F	C255	6N	C413	10L	L9	6R	Q213	7J	R39	10S	R203	3N	R313	2B	R423	1F
C8	3O	C132	6G	C256	7M	C414	10L	L10	7R	Q214	6K	R40	10R	R204	3N	R314	3C	R424	2F
C9	3O	C133	6G	C257	7N	C415	10D	L11	8R	Q215	6K	R41	10R	R205	3M	R315	3C	R425	9L
C10	4O	C134	6H	C258	8M	C416	10D	L12	7P	Q216	7K	R42	10R	R206	3M	R316	3C	R426	9K
C11	3O	C135	6I	C259	8M	C417	6A	L13	8P	Q217	7K	R43	10R	R207	3M	R317	3D	R427	9K
C12	3O	C136	6I	C260	2M	C418	6A	L14	7O	Q218	8J	R44	10P	R208	3L	R318	3D	R428	9K
C13	4O	C137	6I	C261	2N	C419	5A	L15	8O	Q219	8K	R45	10O	R209	2L	R319	4D	R429	9D
C14	4P	C138	6H	C262	4N	C420	1B	L101	2I	Q220	8K	R47	10N	R210	2L	R320	5C	R430	9C
C15	4P	C139	7H	C263	6L	C421	0B	L102	3G	Q221	8K	R48	10O	R211	2K	R321	5C	R431	9C
C16	4R	C140	6G	C264	7N	C422	0C	L103	4H	Q222	8L	R49	10O	R212	2K	R322	5C	R432	9C
C17	4R	C141	7H	C265	8N	C423	1C	L104	4I	Q223	8L	R50	10O	R213	2K	R323	5D	R433	10O
C18	4R	C142	7I	C266	7J	C424	0D	L105	4I	Q224	8M	R51	10P	R214	3L	R324	6D	R434	9N
C19	4S	C143	8I	C267	2L	C425	1D	L106	6F	Q225	4N	R52	6P	R215	3L	R325	5D	R435	10G
C20	5R	C144	8I	C268	2L	C426	1A	L107	6H	Q226	4M	R53	5R	R216	3L	R326	5D	R436	9F
C21	5R	C145	8I	C269	2K	C427	0A	L108	6I	Q227	7N	R54	5R	R217	3L	R327	6D	R437	9M
C22	5R	C146	9H	C270	2K	C428	1B	L109	6I	Q228	7N	R55	5R	R218	3L	R328	6D	R438	9M
C23	5P	C147	7G	C271	2L	C429	1A	L110	7H	Q229	8M	R56	5R	R219	4L	R329	6D	R439	9E
C24	5O	C148	7H	C301	3E	C430	1A	L111	8I	Q230	8M	R57	6R	R220	5L	R330	7D	R440	9D
C25	5P	C149	8H	C302	3E	C431	2A	L112	7G	Q231	2L	R58	6R	R221	5L	R331	7D	R441	0O
C26	5O	C150	8H	C303	2E	C432	10M	L113	8H	Q301	3E	R59	6P	R222	5L	R332	7D	R442	0O
C27	5O	C151	8H	C304	3E	C433	10E	L114	7F	Q302	3D	R60	6P	R223	5L	R333	7C	R443	0P
C28	6O	C152	9G	C305	3D	C434	10L	L115	8G	Q303	3D	R61	6P	R224	6L	R334	7C	R444	0P
C29	6N	C153	7F	C306	2D	C435	10C	L201	2M	Q304	2C	R62	7P	R225	5L	R335	7C	R445	0N
C30	5N	C154	7G	C307	2D	C436	0N	L202	2M	Q305	2B	R63	6O	R226	5M	R336	7C	R446	0N
C31	6O	C155	8G	C308	3D	C437	0O	L203	3K	Q306	4D	R64	3P	R227	6M	R337	7B	R447	0N
C32	6P	C156	8G	C309	3C	C438	10N	L204	4L	Q307	4D	R65	9R	R228	6L	R338	6B	R448	0M
C33	6O	C157	8G	C310	3D	C439	10F	L205	4M	Q308	6D	R66	9P	R229	6L	R339	7B	R449	0L
C34	5R	C158	9G	C311	3C	C440	2R	L206	5K	Q309	5D	R67	8P	R230	7M	R340	6C	R450	0L
C35	6R	C159	9I	C312	3C	C441	2I	L207	6L	Q310	7D	R68	10P	R231	7L	R341	6B	R451	6A
C36	6R	C160	9H	C313	4C	C442	2N	L208	4L	Q311	7C	R69	10P	R232	7L	R342	6C	R452	6A
C37	6R	C161	9G	C314	3B	C443	2E	L209	7M	Q312	7B	R101	3I	R233	7L	R343	6C	R453	5A
C38	6P	C162	9G	C315	3B	C444	10L	L210	3M	Q313	7B	R102	2I	R234	7L	R344	6C	R460	0M
C39	7P	C163	7I	C316	4B	C445	10C	L301	2E	Q314	6C	R103	3I	R235	7K	R345	7C	R461	0N
C40	6P	C164	7I	C317	4C	C447	5A	L302	2E	Q315	6C	R104	3I	R236	7K	R346	7C	R500	9M
C41	7R	C165	10I	C318	4C	C448	5A	L303	3B	Q316	7C	R105	2H	R237	7J	R347	7B	R501	10L
C42	7R	C166	10I	C319	3D	C500	9L	L304	4D	Q317	7B	R106	2H	R238	6J	R348	7B	R502	9L
C43	8R	C167	10H	C320	4E	C600	9D	L305	4D	Q318	8B	R107	3H	R239	7J	R349	7B	R503	9L
C44	8R	C168	10H	C321	4D	C601	11N	L306	5B	Q319	8C	R108	3H	R240	6K	R350	7C	R504	10M
C45	8R	C169	9H	C322	5D	C602	11L	L307	6D	Q320	8B	R109	3H	R241	6K	R351	7B	R600	9D
C46	9R	C171	10F	C323	5C	C603	11E	L308	4D	Q321	8C	R110	3H	R242	6K	R352	8C	R601	10D
C47	7P	C172	4I	C324	5D	C604	11D	L309	7D	Q322	8C	R111	3I	R243	6L	R353	7C	R602	9D
C48	7P	C173	4H	C325	5C	CN4	0L	L310	3E	Q323	8D	R112	3I	R244	6L	R354	7C	R603	9D
C49	8P	C174	6I	C326	5C	CN14	0P	L401	5A	Q324	8D	R113	3I	R245	7K	R356	7C	R604	10D
C50	8P	C175	7I	C327	6C	DL1	8R	L402	5A	Q325	4F	R114	4I	R246	7K	R357	8C	TP1	3P
C51	8P	C176	9F	C328	5B	DL11	8I	Q1	3R	Q326	4E	R115	5I	R247	7K	R358	8C	TP2	3P
C52	9P	C177	10G	C329	5B	DL21	5M	Q2	3R	Q327	7E	R116	5I	R248	7J	R359	8C	TP3	5O
C53	7O	C201	3N	C330	6B	DL22	5N	Q3	4P	Q328	7F	R117	4I	R249	7J	R360	8D	TP4	5P
C54	7O	C202	3M	C331	6C	DL31	5E	Q4	5S	Q329	8E	R118	5I	R250	7K	R361	8D	TP5	9R
C55	8O	C203	2M	C332	6C	DL32	5F	Q5	5R	Q330	8E	R119	4I	R251	7K	R362	7D	TP6	9P
C56	8O	C204	3M	C333	6D	IC1	3P	Q6	5R	Q331	2D	R120	5H	R252	8K	R363	7D	TP7	9P
C57	8O	C205	3M	C334	6D	IC2	5P	Q7	6R	Q401	9N	R121	5G	R253	7K	R364	8D	TP8	9N
C58	9O	C206	2L	C335	5D	IC3	8R	Q8	7R	Q402	9F	R122	5G	R254	7K	R365	3F	TP10	9P
C59	9R	C207	2L	C336	6D	IC4	8P	Q9	7P	Q403	2R	R123	7I	R256	7K	R366	3F	TP11	3G
C60	9P	C208	3L	C337	7D	IC5	8O	Q10	7O	Q404	2I	R124	8H	R257	8K	R367	3E	TP12	3H
C61	9P	C209	3K	C338	7D	IC6	9O	Q11	8P	Q405	2M	R125	7H	R258	8L	R368	4E	TP13	5G
C62	9P	C210	3L	C339	7D	IC7	10P	Q12	8P	Q406	2E	R126	8G	R259	8L	R369	4E	TP14	5G
C63	7S	C211	3K	C340	7D	IC11	3H	Q13	8O	Q407	9L	R127	7G	R260	8L	R370	4E	TP15	9H
C64	7S	C212	3K	C341	7C	IC12	5G	Q14	9O	Q408	9C	R128	8F	R261	8M	R371	4E	TP16	9H
C65	10R	C213	4K	C342	7B	IC13	8I	Q15	9O	Q500	10L	R129	9G	R262	7M	R372	6E	TP17	9G
C66	10R	C214	3J	C343	6B	IC14	8H	Q16	9O	Q501	10L	R130	9G	R263	7M	R373	7E	TP18	9F
C67	10R	C215	3K	C344	6B	IC15	8G	Q17	7S	Q502	9D	R131	9G	R264	8M	R374	7E	TP20	9H
C68	10P	C216	4K	C345	7C	IC16	9G	Q18	10R	Q503	10D	R132	9G	R265	3N	R375	7E	TP21	4K
C69	9P	C217	4L	C346	7C	IC17	10H	Q19	10P	R1	3S	R133	9G	R266	3N	R376	7E	TP22	6K
C71	10O	C218	4K	C347	8B	IC21	2L	Q20	10P	R2	2R	R134	9F	R267	3N	R377	7F	TP23	5L
C72	4S	C219	3L	C348	8C	IC22	3L	Q21	10O	R3	3R	R135	7I	R268	4M	R378	8F	TP24	8L
C73	4R	C220	4M	C349	8C	IC23	5L	Q22	10P	R4	3R	R136	7I	R269	4M	R379	8E	TP25	8L
C74	6S	C221	4L	C350	7D	IC24	7L	Q101	3I	R5	2R	R137	7I	R270	4N	R380	8E	TP27	4L
C75	7R	C222	5L	C351	7E	IC25	2K	Q102	3H	R6	2R	R138	7I	R271	4N	R381	7E	TP28	0C
C76	9O	C223	5K	C352	3E	IC31	2D	Q103	4H	R7	3R	R139	10I	R272	6N	R382	7E	TP29	11K
C77	9O	C224	5L	C353	3E	IC32	3C	Q104	5I	R8	3P	R140	10I	R273	7M	R383	8E	TP31	4C
C101	3I	C225	5K	C354	4E	IC33	5C	Q105	5I	R9	3P	R141	10I	R274	7M	R384	8E	TP32	6C
C102	3I	C226	5K	C355	6E	IC34	7D	Q106	5H	R10	3R	R142	10H	R275	7N	R385	2D	TP33	5D

TP34	8C	TP39	11B	TP51	10E	VR1	3P	VR4	5P	VR7	8R	VR10	10R	VR101	3H	VR104	5G	VR107	8H	VR110	10I
TP35	8D	TP40	1E	TP52	10K	VR2	3P	VR5	5O	VR8	8P	VR11	10O	VR102	3G	VR105	5G	VR108	8G	VR111	10G
TP37	4C	TP41	2B	TP53	10C	VR3	5R	VR6	7P	VR9	8O	VR12	10O	VR103	5H	VR106	7G	VR109	8F	VR112	10F
TP38	1B	TP50	10M																		



TP34	8C	TP39	11B	TP51	10E	VR1	3P	VR4	5P	VR7	8R	VR10	10R	VR101	3H	VR104	5G	VR107	8H
TP35	8D	TP40	1E	TP52	10K	VR2	3P	VR5	5O	VR8	8P	VR11	10O	VR102	3G	VR105	5G	VR108	8G
TP37	4C	TP41	2B	TP53	10C	VR3	5R	VR6	7P	VR9	8O	VR12	10O	VR103	5H	VR106	7G	VR109	8F
TP38	1B	TP50	10M																

VR110	10I	VR201	3L	VR204	5L	VR207	7M	VR210	8N	VR301	3C	VR304	5C	VR307	7E	VR310	8E	VR500	9M
VR111	10G	VR202	3K	VR205	5K	VR208	8L	VR211	2K	VR302	3C	VR305	5C	VR308	8D	VR311	2C	VR501	9D
VR112	10F	VR203	4M	VR206	6M	VR209	7N	VR212	8N	VR303	4D	VR306	6D	VR309	7E	VR312	8E	X1	6A


Y/C SEP BOARD
SCK1097-P0A
SCB1097-002
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
R
S
U
1
2
3
4
5
6
7
8
9
10
11

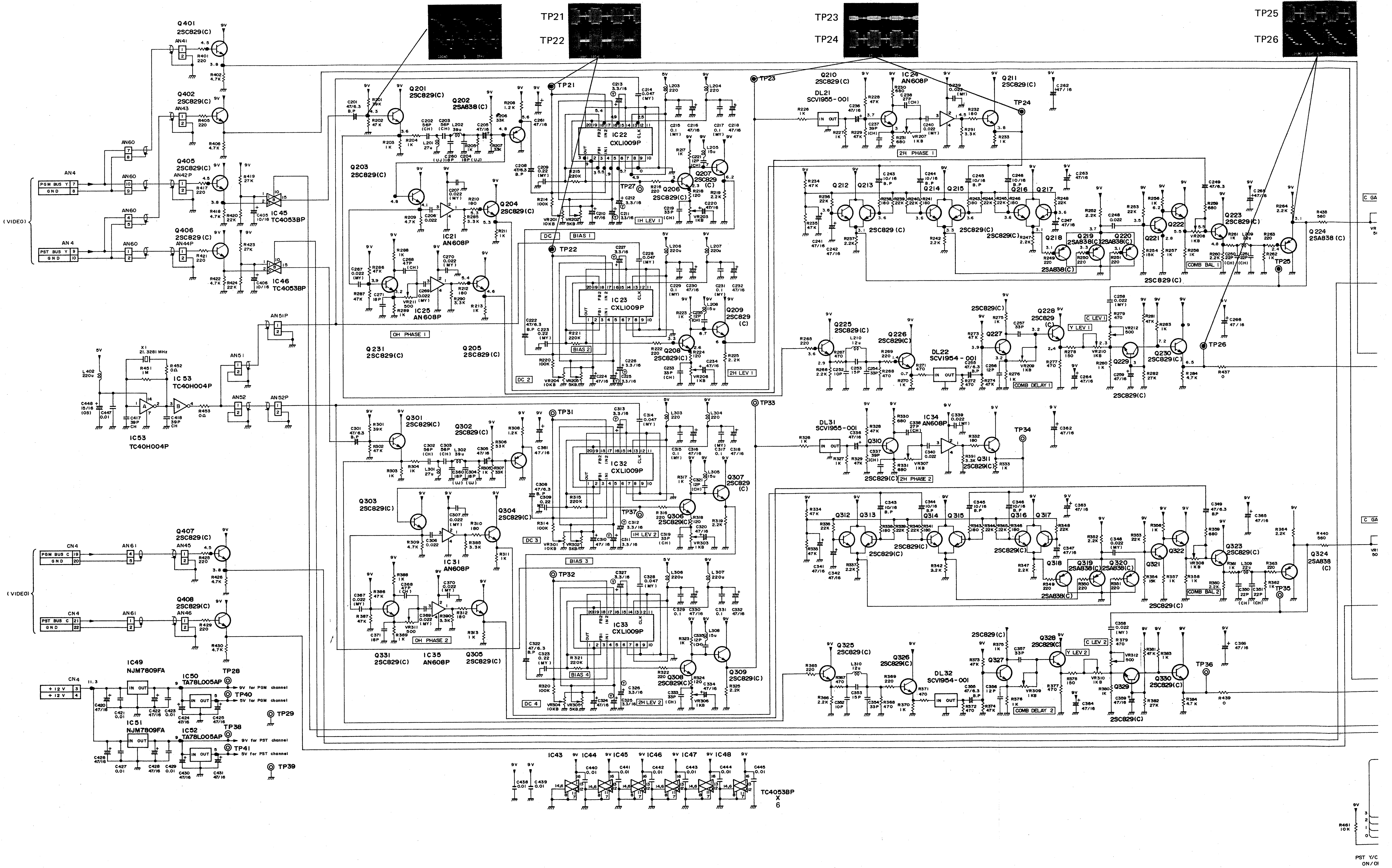
6.14-P Y/C SEPA BOARD SCHEMATIC DIAGRAM (PAL) 1 0

INPUT 1 : COMPOSITE COLOR BARS
200 mV/div., 20 µsec/div.

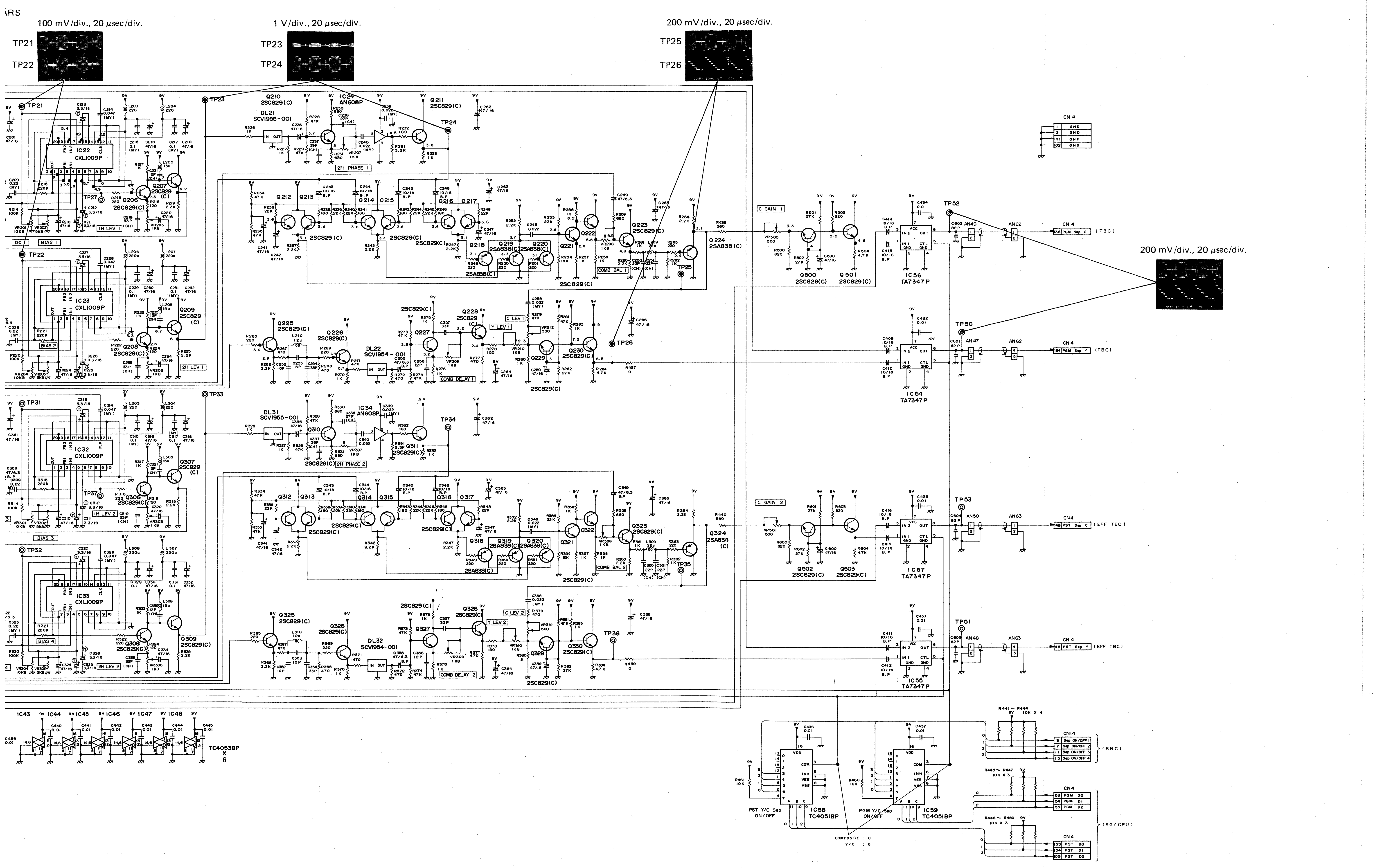
100 mV/div., 20 µsec/div.

1 V/div., 20 µsec/div.

200 mV/div., 20 µsec/div



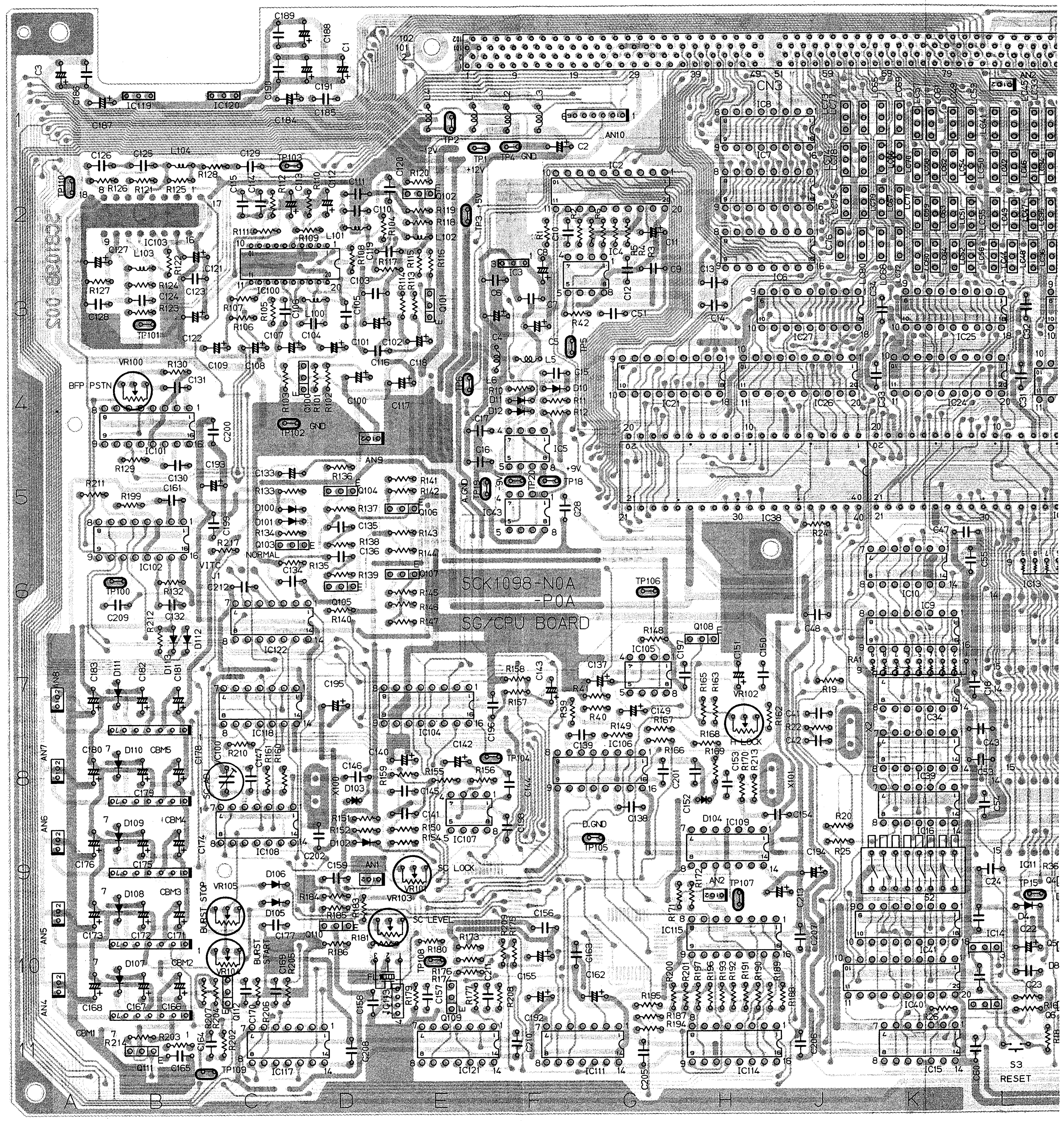
TP21
TP22
TP23
TP24
TP25
TP26
Q401 2SC829(C)
Q402 2SC829(C)
Q405 2SC829(C)
Q406 2SC829(C)
Q407 2SC829(C)
Q408 2SC829(C)
AN4
AN60
AN61
CN4
PGM BUS Y
PST BUS Y
PGM BUS C
PST BUS C
GND
(VIDEO)
IC45 TC4053BP
IC46 TC4053BP
IC53 TC40H004P
X1 21.3281 MHz
AN51P
AN51
AN52
AN52P
IC49 NJM7809FA
IC50 TA78L005AP
IC51 NJM7809FA
IC52 TA78L005AP
TP28
TP29
TP38
TP39
TP40
TP41
9V for PGM channel
5V for PGM channel
9V for PST channel
5V for PST channel
+12 V
Q201 2SC829(C)
Q202 2SA838(C)
Q203 2SC829(C)
Q204 2SC829(C)
Q205 2SC829(C)
Q231 2SC829(C)
IC21 AN608P
IC25 AN608P
IC22 CXL1009P
IC23 CXL1009P
Q206 2SC829(C)
Q207 2SC829(C)
Q208 2SC829(C)
Q209 2SC829(C)
TP27
DC 1
DC 2
BIAS 1
BIAS 2
1H LEV 1
2H LEV 1
0H PHASE 1
Q210 2SC829(C)
Q211 2SC829(C)
IC24 AN608P
DL21 SCV1955-001
2H PHASE 1
Q212
Q213
Q214
Q215
Q216
Q217
Q218
Q219 2SA838(C)
Q220 2SA838(C)
Q221
Q222
Q223 2SC829(C)
Q224 2SA838(C)
COMB BAL 1
Q225 2SC829(C)
Q226 2SC829(C)
Q227
Q228 2SC829
Q229
Q230 2SC829(C)
DL22 SCV1954-001
C LEV 1
Y LEV 1
COMB DELAY 1
Q301 2SC829(C)
Q302 2SC829(C)
Q303 2SC829(C)
Q304 2SC829(C)
Q305 2SC829(C)
Q331 2SC829(C)
IC31 AN608P
IC35 AN608P
IC32 CXL1009P
IC33 CXL1009P
Q306 2SC829(C)
Q307 2SC829(C)
Q308 2SC829(C)
Q309 2SC829(C)
TP31
TP32
TP33
TP34
TP35
TP36
TP37
DC 3
DC 4
BIAS 3
BIAS 4
1H LEV 2
2H LEV 2
0H PHASE 2
Q310
Q311 2SC829(C)
IC34 AN608P
DL31 SCV1955-001
2H PHASE 2
Q312
Q313
Q314
Q315
Q316
Q317
Q318
Q319 2SA838(C)
Q320 2SA838(C)
Q321
Q322
Q323 2SC829(C)
Q324 2SA838 (C)
COMB BAL 2
Q325 2SC829(C)
Q326 2SC829(C)
Q327
Q328 2SC829(C)
Q329
Q330 2SC829(C)
DL32 SCV1954-001
C LEV 2
Y LEV 2
COMB DELAY 2
IC43
IC44
IC45
IC46
IC47
IC48
TC4053BP X 6
R461 10K
PST Y/C ON/O


ıRS
100 mV/div., 20 µsec/div.
TP21
TP22
1 V/div., 20 µsec/div.
TP23
TP24
200 mV/div., 20 µsec/div.
TP25
TP26
200 mV/div., 20 µsec/div.
IC22 CXL1009P
IC23 CXL1009P
IC32 CXL1009P
IC33 CXL1009P
Q206 2SC829(C)
Q207 2SC829(C)
Q208 2SC829(C)
Q209 2SC829(C)
Q306 2SC829(C)
Q307 2SC829(C)
Q308 2SC829(C)
Q309 2SC829(C)
TP27
TP37
1H LEV 1
1H LEV 2
2H LEV 1
2H LEV 2
BIAS 1
BIAS 2
BIAS 3
BIAS 4
DC
Q210 2SC829(C)
DL21 SCV1955-001
IC24 AN608P
Q211 2SC829(C)
2H PHASE 1
DL31 SCV1955-001
IC34 AN608P
Q310
Q311
2H PHASE 2
TP34
TP31
TP32
TP33
Q212 Q213 Q214 Q215 Q216 Q217 Q218
2SC829(C)
Q219 2SA838(C)
Q220 2SA838(C)
2SA838(C)
Q221 Q222
Q223 2SC829(C)
Q224 2SA838(C)
COMB BAL 1
Q312 Q313 Q314 Q315 Q316 Q317 Q318
Q319 2SA838(C)
Q320 2SA838(C)
Q321 Q322
Q323 2SC829(C)
Q324 2SA838(C)
COMB BAL 2
TP35
Q225 2SC829(C)
Q226 2SC829(C)
Q227
Q228 2SC829(C)
DL22 SCV1954-001
COMB DELAY 1
Y LEV 1
C LEV 1
Q229
Q230 2SC829(C)
Q325 2SC829(C)
Q326 2SC829(C)
Q327
Q328 2SC829(C)
DL32 SCV1954-001
COMB DELAY 2
Y LEV 2
C LEV 2
Q329
Q330 2SC829(C)
TP36
C GAIN 1
C GAIN 2
Q500 2SC829(C)
Q501 2SC829(C)
Q502 2SC829(C)
Q503 2SC829(C)
IC56 TA7347P
IC54 TA7347P
IC57 TA7347P
IC55 TA7347P
TP50
TP51
TP52
TP53
AN47 AN48 AN49 AN50
AN62 AN63
CN4
1 GND
2 GND
101 GND
102 GND
136 PGM Sep C (TBC)
134 PGM Sep Y (TBC)
48 PST Sep C (EFF TBC)
48 PST Sep Y (EFF TBC)
IC43 IC44 IC45 IC46 IC47 IC48
TC4053BP X 6
IC58 TC4051BP
IC59 TC4051BP
PST Y/C Sep ON/OFF
PGM Y/C Sep ON/OFF
COMPOSITE : 0
Y/C : 6
R441 ~ R444 10K X 4
R445 ~ R447 10K X 3
R448 ~ R450 10K X 3
CN14
3 Sep ON/OFF 1
7 Sep ON/OFF 2
11 Sep ON/OFF 3
15 Sep ON/OFF 4
(BNC)
53 PGM D0
54 PGM D1
55 PGM D2
(SG/CPU)
153 PST D0
154 PST D1
155 PST D2

6.15 SG/CPU CIRCUIT BOARD

- **Parts Location Table of SG/CPU board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

AN2	0L	C129	1C	D11	4F	LC16	0N	R22	7H	R185	9C
AN1	9D	C130	4B	D12	4F	LC17	0M	R23	5N	R186	9D
AN2	9H	C131	4B	D100	5C	LC18	1M	R24	5J	R187	10G
AN3	10T	C132	6B	D101	5C	LC19	2M	R25	8J	R188	10H
AN4	10A	C133	4C	D102	8D	LC20	2M	R26	10K	R189	10H
AN5	9A	C134	6C	D103	8D	LC21	1M	R27	10N	R190	10H
AN6	8A	C135	5D	D104	8G	LC22	1M	R28	10N	R191	10H
AN7	8A	C136	5D	D105	9C	LC23	2M	R29	9P	R192	10H
AN8	7A	C137	7F	D106	9C	LC24	2M	R30	9P	R193	10H
AN9	4D	C138	8F	D107	10A	LC25	1L	R31	10P	R194	10G
AN10	1G	C139	7F	D108	9A	LC26	1L	R32	10P	R195	10G
AN11	1V	C140	8D	D109	8A	LC27	2L	R33	10P	R196	10G
C1	0D	C141	8D	D110	8A	LC28	2L	R34	10P	R197	10G
C2	1F	C142	8E	D111	7A	LC29	1L	R35	11M	R199	5A
C3	0A	C143	7F	D112	6B	LC30	1L	R36	9L	R200	10G
C4	3E	C144	8E	D113	6B	LC31	2L	R37	9L	R201	10G
C5	3F	C145	8D	FL100	10D	LC32	2L	R38	10L	R202	10B
C6	2E	C146	8D	IC1	6R	LC33	1L	R39	7F	R203	11B
C7	3F	C147	8C	IC2	1G	LC34	1L	R40	7F	R204	10B
C8	2F	C148	11U	IC3	2E	LC35	2L	R41	7F	R205	10C
C9	2G	C149	7G	IC4	2F	LC36	2L	R42	3F	R206	10C
C10	2F	C150	7H	IC5	4F	LC37	1L	R101	4C	R207	10B
C11	2G	C151	7H	IC6	2H	LC38	1L	R102	3C	R208	10E
C12	2G	C152	8G	IC7	1H	LC39	2L	R103	3C	R209	9E
C13	2H	C153	8H	IC8	1H	LC40	2L	R104	2D	R210	7C
C14	3H	C154	8H	IC9	6K	LC41	1K	R105	3C	R211	5A
C15	3F	C155	10F	IC10	5K	LC42	1K	R106	3C	R212	6B
C16	4E	C156	9F	IC11	8M	LC43	2K	R107	3B	R213	8H
C17	4E	C157	10D	IC12	7M	LC44	2K	R108	2D	R214	10B
C18	7K	C158	10D	IC13	6M	LC45	1L	R109	2C	R215	10S
C19	6M	C159	9D	IC14	10K	LC46	1L	R110	1C	R216	10S
C20	7M	C161	5B	IC15	10K	LC47	2L	R111	2C	R217	5B
C21	8M	C162	10F	IC16	8K	LC48	2L	R112	1C	RA1	6K
C22	10L	C163	9F	IC17	9N	LC49	1K	R113	3D	RA2	7P
C23	10L	C164	11B	IC18	9S	LC50	1K	R114	3D	RA3	9S
C24	9L	C165	11B	IC19	9R	LC51	2K	R115	2D	RA4	9S
C25	7S	C166	10B	IC20	1R	LC52	2K	R116	2D	RA5	1R
C26	7R	C167	10A	IC21	3H	LC53	1K	R117	2D	RA6	5P
C27	7R	C168	10A	IC22	3M	LC54	1K	R118	2D	RA7	7P
C28	5F	C169	10C	IC23	3M	LC55	2K	R119	2D	RA8	5M
C29	4M	C170	10C	IC24	3L	LC56	2K	R120	1D	RA9	6S
C30	3M	C171	9B	IC25	3L	LC57	1K	R121	1B	RA10	4S
C31	4L	C172	9A	IC26	3J	LC58	1K	R122	2B	RA11	2R
C32	3L	C173	9A	IC27	3J	LC59	2K	R123	3B	RY1	10M
C33	4J	C174	9B	IC28	3R	LC60	2K	R124	2B	RY2	9M
C34	3J	C175	9A	IC29	3R	LC61	1K	R125	1B	RY3	10M
C35	4R	C176	9A	IC30	3P	LC62	1K	R126	1A	RY4	10M
C36	3R	C177	9C	IC31	3P	LC63	2K	R127	2A	RY5	11M
C37	3P	C178	8B	IC32	0P	LC64	2K	R128	1B	S1	4R
C38	3P	C179	8A	IC33	1P	LC65	1J	R129	4B	S2	9K
C39	0P	C180	8A	IC34	7K	LC66	1J	R130	3B	S3	11L
C40	1P	C181	7B	IC35	2R	LC67	2J	R132	6B	S4	11T
C41	7J	C182	7A	IC36	4P	LC68	2J	R133	5C	TP1	1E
C42	7J	C183	7A	IC37	4M	LC69	1J	R134	5C	TP2	1E
C43	7K	C184	0C	IC38	4J	LC70	1J	R135	5C	TP3	2E
C44	2R	C185	0D	IC39	7K	LC71	2J	R136	4D	TP4	1E
C45	1R	C186	0A	IC40	10K	LC72	2J	R137	5D	TP5	3F
C46	5M	C187	1A	IC41	9K	LC73	1J	R138	5D	TP6	3E
C47	5K	C188	0C	IC42	8R	LC74	1J	R139	6D	TP7	7P
C48	6J	C189	0C	IC43	5F	LC75	2J	R140	6D	TP8	7P
C49	9N	C190	0C	IC100	2C	LC76	2J	R141	5D	TP9	7P
C50	9N	C191	0C	IC101	4B	LC77	1J	R142	5D	TP10	7P
C51	3G	C192	10F	IC102	5B	LC78	1J	R143	5D	TP11	7R
C53	8K	C193	5B	IC103	2B	LC79	2J	R144	5D	TP12	5M
C54	8K	C194	9J	IC104	7E	LC80	2J	R145	6D	TP13	9R
C55	6K	C195	7D	IC105	6G	Q1	10N	R146	6D	TP14	9S
C56	6P	C196	7E	IC106	7G	Q3	11N	R147	6D	TP15	9L
C57	10S	C197	7G	IC107	8E	Q4	9L	R148	6G	TP16	5N
C58	10P	C198	8E	IC108	8C	Q5	10L	R149	7G	TP17	5R
C59	6P	C199	5B	IC109	8H	Q6	10L	R150	8D	TP18	5F
C60	11K	C200	4B	IC111	10F	Q100	4C	R151	8D	TP19	5E
C100	3D	C201	8G	IC112	9E	Q101	3D	R152	8D	TP20	5E
C101	3D	C202	8C	IC113	10D	Q102	1D	R154	8D	TP21	6P
C102	3D	C205	11G	IC114	10H	Q103	5C	R155	8D	TP22	7P
C103	3D	C206	11H	IC115	9H	Q104	5D	R156	8E	TP23	7S
C104	3C	C207	10H	IC116	9G	Q105	6D	R157	7E	TP100	6A
C105	3D	C208	11D	IC117	10C	Q106	5D	R158	7F	TP101	3A
C106	3C	C209	6A	IC118	7C	Q107	6D	R159	8D	TP102	4C
C107	3C	C210	11E	IC119	0A	Q108	6G	R160	8C	TP103	1C
C108	3C	C211	10E	IC120	0B	Q109	10E	R161	8C	TP104	7E
C109	3B	C212	6C	IC121	10E	Q110	9D	R162	7H	TP105	8F
C110	2D	C213	9H	IC122	6C	Q111	11B	R163	7G	TP106	6G
C111	1D	CBM1	10B	J1	5C	Q112	10B	R165	7G	TP107	9H
C112	2C	CBM2	9B	L1	1E	R1	2F	R166	7G	TP108	10E
C113	2C	CBM3	9B	L2	1E	R2	2F	R167	7G	TP109	11B
C114	1C	CBM4	8B	L3	1F	R3	2G	R168	7G	TP110	1A
C115	1C	CBM5	7B	L4	1D	R4	2F	R169	8G	VC100	8B
C116	3D	CBM6	10U	L5	3F	R5	2F	R170	8H	VR100	4B
C117	4D	CN3	0M	L6	3E	R6	2F	R171	9G	VR101	9D
C118	3D	CN13	0S	L100	3C	R8	9M	R172	9G	VR102	7H
C119	2D	D1	9N	L101	2D	R10	4E	R173	10E	VR103	9D
C120	2D	D2	9P	L102	2D	R11	4F	R174	10E	VR104	10B
C121	2B	D3	9P	L103	2B	R12	4F	R175	9E	VR105	9B
C122	3B	D4	9L	L104	1B	R13	10M	R176	10E	VR106	11S
C123	2B	D5	11L	LC10	1M	R14	9M	R177	10E	VR107	11T
C124	3B	D6	11N	LC11	1M	R15	9M	R179	10D	X1	7R
C125	1B	D7	9L	LC12	0N	R16	10L	R180	9E	X2	7J
C126	1A	D8	10L	LC13	0M	R18	10L	R181	9D	X100	8C
C127	2A	D9	10L	LC14	1M	R19	7J	R183	9D	X101	8H
C128	3A	D10	4F	LC15	1M	R20	8J	R184	9D		



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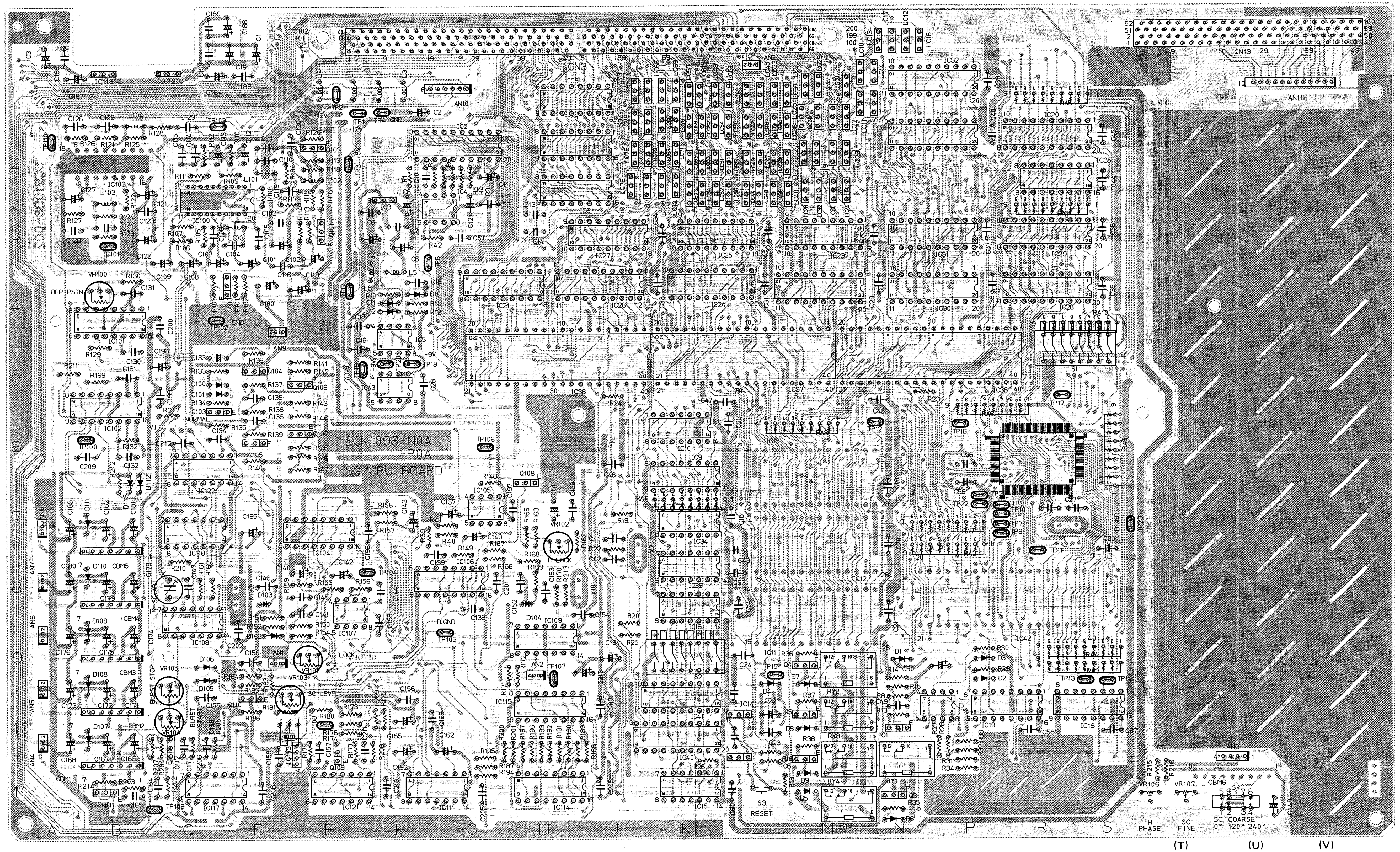
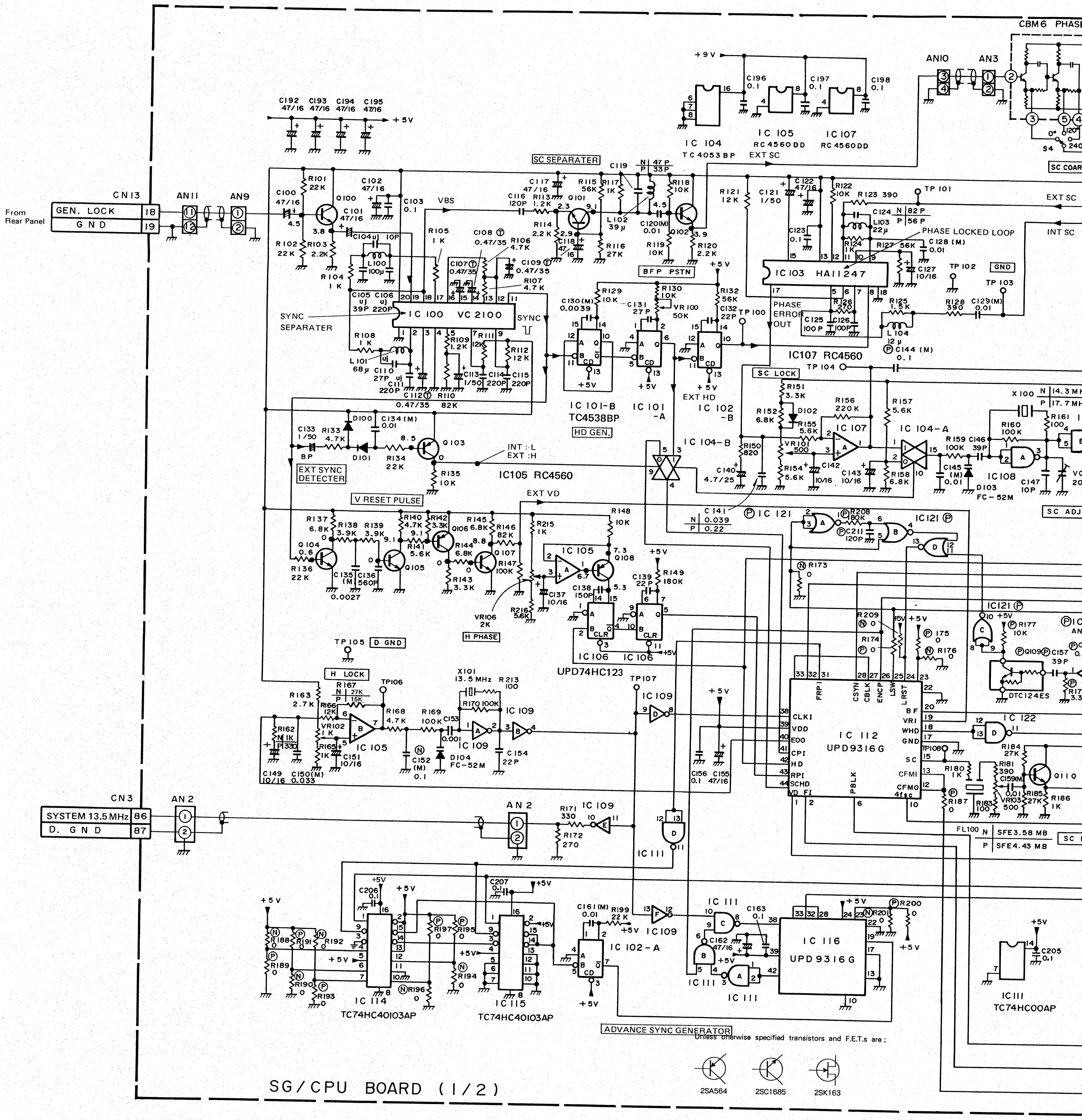
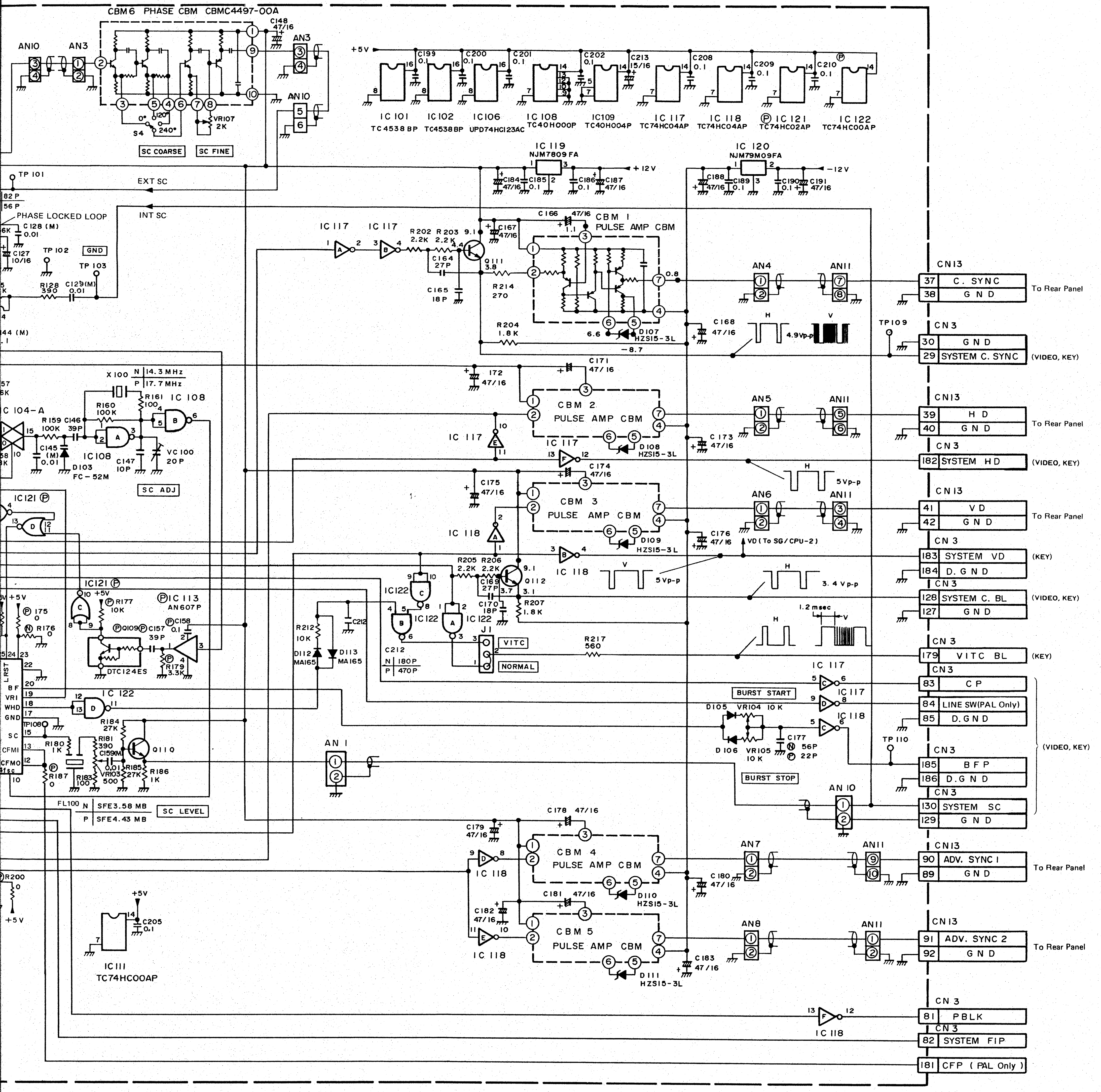
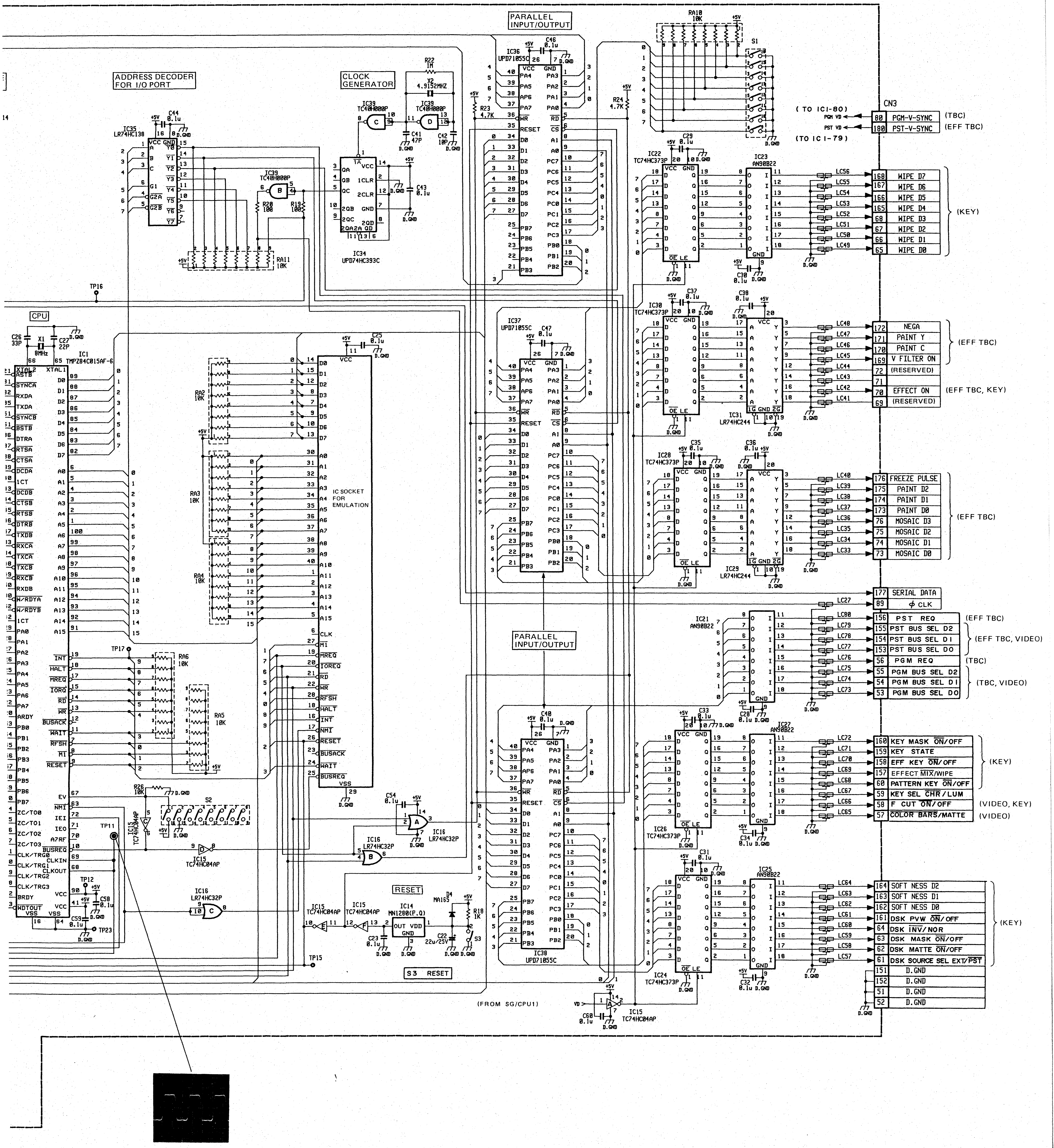

SCK1098-N0A
-P0A
SG/CPU BOARD
CN3
CN13
AN11
BFP PSTN
SC LOCK
SC LEVEL
FH LOCK
BURST STOP
BURST START
NORMAL
VITC
RESET
S3
D.GND
A.GND
+12V
-12V
GND
+9V
-9V
H PHASE
SC FINE
SC COARSE
0° 120° 240°
A
B
C
D
E
F
G
H
J
K
L
M
N
P
R
S
(T)
(U)
(V)
1
2
3
4
5
6
7
8
9
10
11

6.16 SG/CPU BOARD SCHEMATIC DIAGRAM-1 1 1

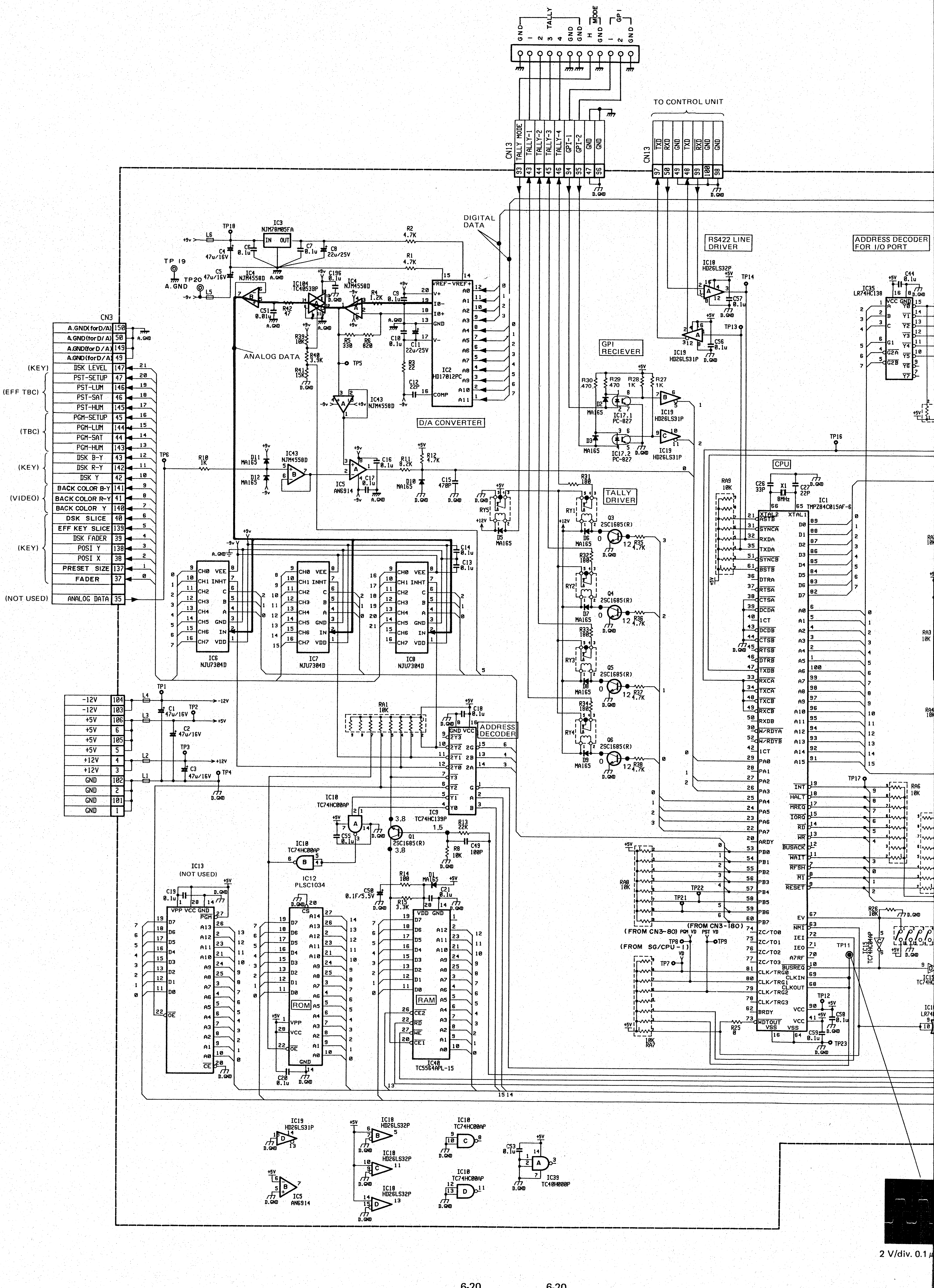

CBM6 PHASE
AN10
AN3
+9V
C196 0.1
C197 0.1
C198 0.1
IC 104 TC4053BP
IC 105 RC4560DD
IC 107 RC4560DD
EXT SC
S4
SC COARSE
C192 47/16
C193 47/16
C194 47/16
C195 47/16
+5V
SC SEPARATER
CN13
AN11
AN9
From Rear Panel
GEN. LOCK 18
GND 19
Q100
Q101
Q102
VBS
SYNC SEPARATER
IC 100 VC 2100
SYNC
L100 100μ
L101 68μ
L102 39μ
BFP PSTN
IC 103 HA11247
PHASE LOCKED LOOP
PHASE ERROR OUT
TP 100
TP 101
TP 102
TP 103
TP 104
GND
EXT SC
INT SC
IC 101-B TC4538BP
IC 101-A
IC 102-B
HD GEN.
EXT HD
IC107 RC4560
SC LOCK
IC 104-B
IC 104-A
IC 107
IC 108 FC-52M
X100 N 14.3 MHz P 17.7 MHz
SC ADJ
D100
D101
D102
D103
Q103
INT : L
EXT : H
EXT SYNC DETECTER
IC105 RC4560
V RESET PULSE
EXT VD
IC 121
Q104
Q105
Q106
Q107
Q108
IC 105
VR106 2K
H PHASE
IC 106
UPD74HC123
TP 105
D GND
H LOCK
TP106
TP107
X101 13.5 MHz
IC 109
IC 105
D104 FC-52M
IC 112 UPD9316G
CLKI
VDD
E00
CPI
HD
RPI
SCHD
VD FI
FRPI
CSYN
CBLK
ENCP
LSW
LRST
BF
VRI
WHD
GND
SC
CFMI
CFMO
PBLK
IC 122
Q109 DTC124ES
Q110
FL100 N SFE3.58 MB P SFE4.43 MB
CN3
AN2
SYSTEM 13.5MHz 86
D. GND 87
AN 2
IC 111
IC 114 TC74HC40103AP
IC 115 TC74HC40103AP
IC 102-A
IC 116 UPD9316G
IC111 TC74HC00AP
ADVANCE SYNC GENERATOR
Unless otherwise specified transistors and F.E.T.s are ;
2SA564
2SC1685
2SK163
SG/CPU BOARD (1/2)


CBM6 PHASE CBM CBMC4497-00A
C148 47/16
AN10
AN3
+5V
C199 0.1
C200 0.1
C201 0.1
C202 0.1
C213 15/16
C208 0.1
C209 0.1
C210 0.1
IC 101 TC4538BP
IC 102 TC4538BP
IC106 UPD74HC123AC
IC 108 TC40H000P
IC109 TC40H004P
IC 117 TC74HC04AP
IC 118 TC74HC04AP
Ⓟ IC 121 TC74HC02AP
IC 122 TC74HC00AP
S4
0°
120°
240°
VR107 2K
SC COARSE
SC FINE
IC 119 NJM7809FA
+12V
C184 47/16
C185 0.1
C186 0.1
C187 47/16
IC 120 NJM79M09FA
-12V
C188 47/16
C189 0.1
C190 0.1
C191 47/16
TP 101
EXT SC
182 P
56 P
PHASE LOCKED LOOP
INT SC
C128 (M) 0.01
C127 10/16
TP 102
GND
TP 103
R128 390
C129(M) 0.01
144 (M)
IC 117
R202 2.2K
R203 2.2K
C164 27P
C165 18P
C166 47/16
C167 47/16
Q111
R214 270
R204 1.8K
CBM 1 PULSE AMP CBM
D107 HZS15-3L
C168 47/16
-8.7
AN4
AN11
H
V
4.9Vp-p
TP109
CN13
37 C. SYNC
38 GND
To Rear Panel
CN3
30 GND
29 SYSTEM C. SYNC
(VIDEO, KEY)
X100 N 14.3MHz P 17.7MHz
IC 104-A
R159 100K
C146 39P
R160 100K
R161 100
IC 108
C145 (M) 0.01
D103 FC-52M
C147 10P
VC100 20P
SC ADJ
C172 47/16
C171 47/16
CBM 2 PULSE AMP CBM
D108 HZS15-3L
C173 47/16
AN5
39 HD
40 GND
182 SYSTEM HD
5Vp-p
C174 47/16
C175 47/16
CBM 3 PULSE AMP CBM
D109 HZS15-3L
C176 47/16
AN6
VD (To SG/CPU-2)
41 VD
42 GND
183 SYSTEM VD
184 D. GND
(KEY)
IC121 Ⓟ
+5V
Ⓟ R177 10K
Ⓟ IC 113 AN607P
Ⓟ Q109
Ⓟ C157 39P
C158 0.1
DTC124ES
Ⓟ R179 3.3K
Ⓟ 175 0
Ⓝ R176 0
R205 2.2K
R206 2.2K
C169 27P
Q112
C170 18P
R207 1.8K
5Vp-p
3.4Vp-p
128 SYSTEM C. BL
127 GND
(VIDEO, KEY)
IC122
C212
R212 10K
D112 MA165
D113 MA165
C212 N 180P P 470P
J1
VITC
NORMAL
R217 560
1.2 msec
179 VITC BL
LRST
BF
VRI
WHD
GND
SC
CFMI
CFMO 8fsc
TP108
R180 1K
R181 390
R184 27K
C159(M)
Q110
VR103 500
R183 100
R185 27K
R186 1K
Ⓟ R187 0
AN 1
FL100 N SFE3.58MB P SFE4.43MB
SC LEVEL
83 CP
BURST START
84 LINE SW(PAL Only)
85 D.GND
D105
VR104 10K
D106
VR105 10K
C177 Ⓝ 56P Ⓟ 22P
BURST STOP
TP 110
185 BFP
186 D.GND
(VIDEO, KEY)
AN 10
130 SYSTEM SC
129 GND
C178 47/16
C179 47/16
CBM 4 PULSE AMP CBM
D110 HZS15-3L
C180 47/16
AN7
90 ADV. SYNC 1
89 GND
C181 47/16
C182 47/16
CBM 5 PULSE AMP CBM
D111 HZS15-3L
C183 47/16
AN8
91 ADV. SYNC 2
92 GND
R200 0
+5V
C205 0.1
IC111 TC74HC00AP
81 PBLK
82 SYSTEM FIP
181 CFP (PAL Only)


ADDRESS DECODER FOR I/O PORT
IC35 LR74HC138
CLOCK GENERATOR
IC39 TC40H000P
X2 4.9152MHZ
R22 1M
IC34 UPD74HC393C
PARALLEL INPUT/OUTPUT
IC36 UPD71055C
IC37 UPD71055C
IC38 UPD71055C
RA10 10K
S1
(TO IC1-80)
(TO IC1-79)
PGM VD
PST VD
CN3
PGM-V-SYNC
PST-V-SYNC
(TBC)
(EFF TBC)
IC22 TC74HC373P
IC23 AN90B22
IC30 TC74HC373P
IC31 LR74HC244
IC28 TC74HC373P
IC29 LR74HC244
IC21 AN90B22
IC26 TC74HC373P
IC27 AN90B22
IC24 TC74HC373P
IC25 AN90B22
WIPE D7
WIPE D6
WIPE D5
WIPE D4
WIPE D3
WIPE D2
WIPE D1
WIPE D0
(KEY)
NEGA
PAINT Y
PAINT C
V FILTER ON
(RESERVED)
EFFECT ON
(EFF TBC, KEY)
FREEZE PULSE
PAINT D2
PAINT D1
PAINT D0
MOSAIC D3
MOSAIC D2
MOSAIC D1
MOSAIC D0
SERIAL DATA
ϕ CLK
PST REQ
PST BUS SEL D2
PST BUS SEL D1
PST BUS SEL D0
PGM REQ
PGM BUS SEL D2
PGM BUS SEL D1
PGM BUS SEL D0
(EFF TBC, VIDEO)
(TBC, VIDEO)
KEY MASK ON/OFF
KEY STATE
EFF KEY ON/OFF
EFFECT MIX/WIPE
PATTERN KEY ON/OFF
KEY SEL CHR/LUM
F CUT ON/OFF
COLOR BARS/MATTE
(VIDEO, KEY)
(VIDEO)
SOFT NESS D2
SOFT NESS D1
SOFT NESS D0
DSK PVW ON/OFF
DSK INV/NOR
DSK MASK ON/OFF
DSK MATTE ON/OFF
DSK SOURCE SEL EXT/PST
D.GND
CPU
IC1 TMPZ84C015AF-6
X1 8MHz
RA2 10K
RA3 10K
RA4 10K
RA5 10K
RA6 10K
RA11 10K
IC SOCKET FOR EMULATION
TP11
TP12
TP15
TP16
TP17
TP23
S2
IC15 TC74HC04AP
IC16 LR74HC32P
RESET
IC14 MN1280(P.Q)
D4 MA165
S3 RESET
(FROM SG/CPU1)

2 V/div. 0.1 µsec/div.

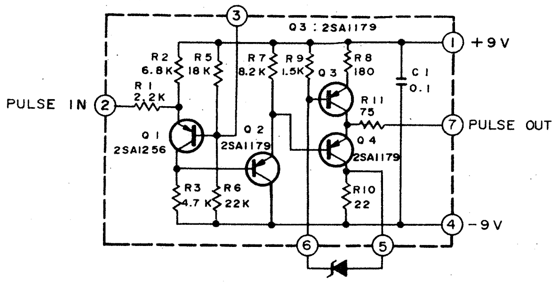
6.17 SG/CPU BOARD SCHEMATIC DIAGRAM-2 1 1



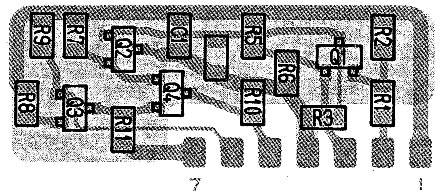
GND
TALLY
H MODE
GPI
TO CONTROL UNIT
CN13
TALLY MODE
TALLY-1
TALLY-2
TALLY-3
TALLY-4
GPI-1
GPI-2
GND
TXD
RXD
D.GND
DIGITAL DATA
RS422 LINE DRIVER
ADDRESS DECODER FOR I/O PORT
IC3 NJM78M05FA
IC4 NJM4558D
IC104 TC4053BP
IC2 HD17012PC
D/A CONVERTER
ANALOG DATA
IC43 NJM4558D
IC5 AN6914
GPI RECIEVER
IC17.1 PC-827
IC17.2 PC-827
IC18 HD26LS32P
IC19 HD26LS31P
TALLY DRIVER
2SC1685(R)
MA165
IC35 LR74HC138
CPU
IC1 TMPZ84C015AF-6
CN3
A.GND(for D/A)
(KEY)
DSK LEVEL
(EFF TBC)
PST-SETUP
PST-LUM
PST-SAT
PST-HUM
(TBC)
PGM-SETUP
PGM-LUM
PGM-SAT
PGM-HUM
DSK B-Y
DSK R-Y
DSK Y
(VIDEO)
BACK COLOR B-Y
BACK COLOR R-Y
BACK COLOR Y
DSK SLICE
EFF KEY SLICE
DSK FADER
POSI Y
POSI X
PRESET SIZE
FADER
(NOT USED)
ANALOG DATA
IC6 NJU7304D
IC7 NJU7304D
IC8 NJU7304D
RA1 10K
ADDRESS DECODER
IC9 TC74HC139P
IC10 TC74HC00AP
Q1 2SC1685(R)
IC13 (NOT USED)
IC12 PLSC1034
ROM
RAM
IC40 TC5564APL-15
(FROM CN3-80)
(FROM CN3-180)
(FROM SG/CPU-1)
IC15 TC74HC04AP
IC39 TC40H000P
2 V/div. 0.1 μ

6.18 CBMs ON THE SG/CPU BOARD

- **PULSE AMP CBM**
  (CBMC4496-00A)
  (CBM1, 2, 3, 4, 5)

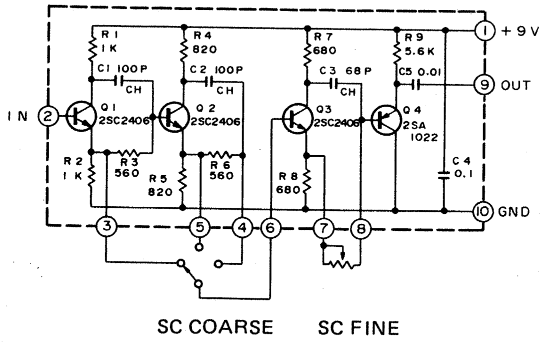


③
Q3 : 2SA1179
① +9V
R2 6.8K
R5 18K
R7 8.2K
R9 1.5K
R8 180
C1 0.1
Q3
R1 2.2K
PULSE IN ②
R11 75
⑦ PULSE OUT
Q1 2SA1256
Q2 2SA1179
Q4 2SA1179
R3 4.7K
R6 22K
R10 22
④ -9V
⑥
⑤

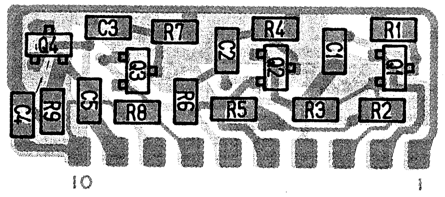


R9
R7
Q2
C1
R5
R6
Q1
R2
R8
Q3
Q4
R10
R3
R1
R11
7
1

- **PHASE SHIFT CBM**
  (CBMC4497-00A)
  (CBM6)



R1 1K
R4 820
R7 680
R9 5.6K
① +9V
C1 100P CH
C2 100P CH
C3 68P CH
C5 0.01
⑨ OUT
IN ②
Q1 2SC2406
Q2 2SC2406
Q3 2SC2406
Q4 2SA 1022
R2 1K
R3 560
R5 820
R6 560
R8 680
C4 0.1
⑩ GND
③
⑤
④
⑥
⑦
⑧
SC COARSE
SC FINE



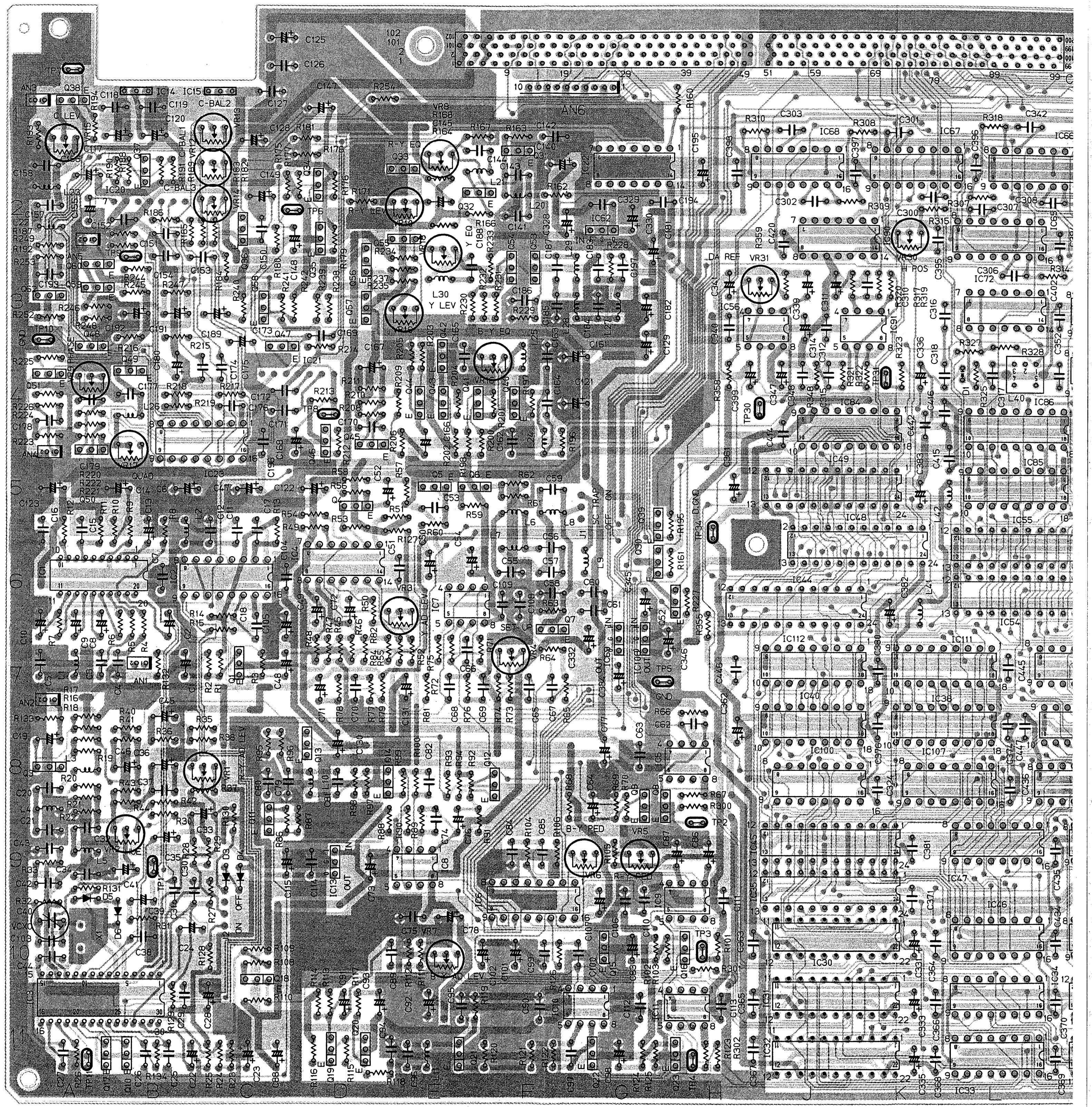
Q4
C3
R7
R4
R1
Q3
C2
Q2
C1
Q1
C4
R9
C5
R8
R6
R5
R3
R2
10
1

6-21

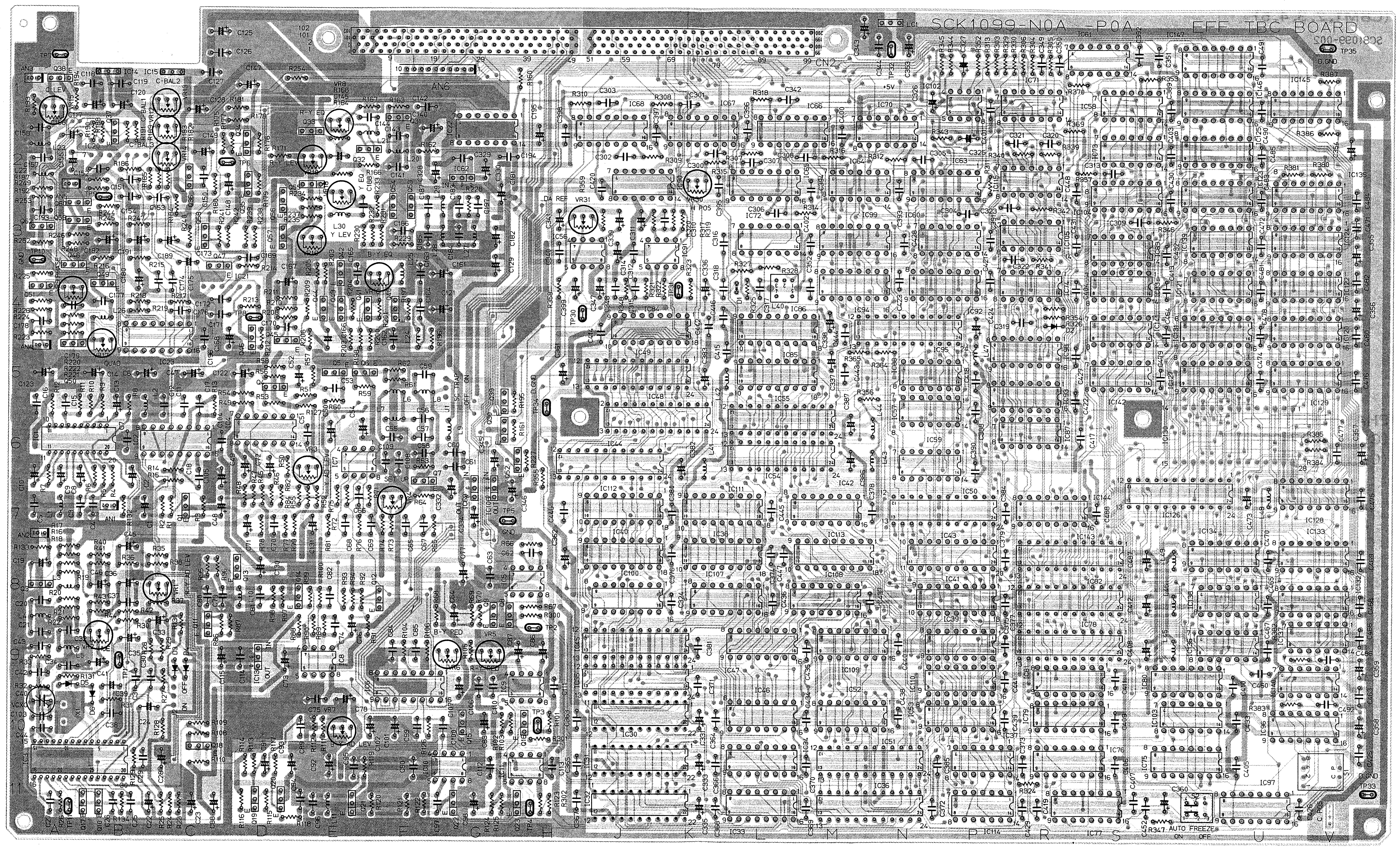
6.19 EFF TBC CIRCUIT BOARD

- **Parts Location Table of EFF TBC board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

AN1	7B	C95	10E	C311	3J	C411	9S	IC36	11N	IC141	4S	R5	6A	R111	10D	R246	3A	VR15	1A
AN2	7A	C96	11D	C312	3J	C412	8S	IC37	10P	IC142	4S	R6	6A	R112	10D	R247	3B	VR16	3E
AN3	1A	C97	11F	C313	2S	C413	4S	IC38	7L	IC143	7S	R7	6A	R113	10D	R248	3A	VR17	4A
AN4	4A	C98	11G	C314	3J	C414	4H	IC39	8P	IC144	6R	R8	5B	R114	10C	R249	2A	VR18	2E
AN5	2A	C99	10F	C315	4J	C415	4K	IC40	7J	IC145	1V	R9	5A	R115	11D	R252	3A	VR19	3D
AN6	0G	C100	10F	C316	3K	C416	4K	IC41	8P	IC146	1T	R10	5A	R116	11C	R253	2A	VR30	2K
C1	7B	C101	10E	C317	3L	C417	6R	IC42	6M	IC147	0T	R11	5A	R117	10D	R254	1D	VR31	2H
C2	6B	C102	10E	C318	4K	C418	5P	IC43	7P	J1	5F	R12	5A	R118	11D	R300	8G	X1	9A
C3	6A	C103	10A	C319	4P	C419	11R	IC44	6J	J2	9B	R13	5C	R119	10E	R301	10G		
C4	6A	C104	6C	C320	1R	C420	2H	IC45	8K	L1	6A	R14	6B	R120	11E	R302	11H		
C5	7A	C105	6C	C321	1P	C421	3P	IC46	9L	L2	5B	R15	6B	R121	11F	R303	0P		
C6	5B	C106	9G	C322	3P	C422	5R	IC47	8L	L3	8A	R16	7A	R122	11F	R304	0P		
C7	6B	C107	9F	C323	2P	C423	3N	IC48	5K	L4	8A	R17	7A	R123	11H	R305	0R		
C8	6A	C108	6F	C324	8J	C424	4P	IC49	4K	L5	9A	R18	7A	R124	11G	R306	0P		
C9	6A	C109	6E	C325	1P	C425	10V	IC50	6P	L6	5E	R19	8A	R125	11G	R307	2L		
C10	6A	C110	9G	C326	1N	C426	11U	IC51	10N	L7	5F	R20	8A	R126	10F	R308	1J		
C11	5C	C111	9H	C327	0N	C427	5R	IC52	9M	L8	5F	R21	8A	R127	5D	R309	2J		
C12	5B	C112	10G	C328	2F	C428	3N	IC53	9P	L9	5F	R22	8A	R128	10B	R310	1H		
C13	5B	C113	10H	C329	2G	C429	11P	IC54	6M	L10	8C	R23	11B	R129	10B	R311	2P		
C14	5A	C114	9C	C330	2G	C430	2S	IC55	5M	L11	11E	R24	11B	R130	8B	R312	2N		
C15	5A	C115	9C	C331	10K	C431	3R	IC56	3H	L20	2F	R25	11B	R131	9A	R313	0P		
C16	5A	C117	1A	C332	6F	C432	3S	IC57	5N	L21	1E	R26	11A	R132	6B	R314	2L		
C17	5C	C118	1A	C333	10K	C433	10T	IC58	1S	L22	2A	R27	9B	R133	7A	R315	2K		
C18	6C	C119	1B	C334	7G	C434	10L	IC59	6N	L23	1A	R28	8B	R134	11B	R316	2M		
C19	7A	C120	1B	C335	11K	C435	9L	IC60	3P	L24	4F	R29	9B	R160	0G	R317	2J		
C20	8A	C121	4F	C336	4K	C436	8L	IC61	0S	L25	3F	R30	8B	R161	6G	R318	1L		
C21	8A	C122	5C	C337	5M	C437	8M	IC62	2G	L26	4A	R31	9A	R162	2F	R319	3J		
C22	11B	C123	5A	C338	4M	C438	10N	IC63	2P	L27	3G	R32	9A	R163	1E	R320	3J		
C23	11C	C125	0C	C339	3J	C439	10P	IC64	2M	L28	3F	R33	9A	R164	2E	R321	4J		
C24	9B	C126	0C	C340	3H	C440	9N	IC65	2L	L29	2F	R35	7B	R166	2E	R322	4J		
C25	11B	C127	0C	C341	3H	C441	9P	IC66	1L	L30	2E	R36	7B	R167	1E	R323	4K		
C26	11B	C128	1C	C342	1L	C442	4K	IC67	1K	L40	3L	R37	8B	R168	1E	R324	10R		
C27	11A	C129	3G	C343	0M	C443	5M	IC68	1J	L41	6K	R38	7B	R171	2D	R325	3K		
C28	10B	C130	8D	C344	0M	C444	4M	IC69	6G	L42	5K	R40	7A	R175	1C	R326	4R		
C29	10B	C131	7D	C345	6G	C445	7L	IC70	1N	L43	6M	R41	7A	R176	2D	R327	3K		
C30	9B	C140	1F	C346	6G	C446	7H	IC71	1R	L44	5M	R42	8B	R177	2C	R328	3L		
C31	9B	C141	2F	C347	4H	C447	7L	IC72	3L	L45	8S	R43	8A	R178	1C	R329	0P		
C32	8A	C142	1F	C348	4J	C448	2R	IC73	1S	L46	8S	R44	8A	R179	2D	R330	0P		
C33	8B	C143	1F	C349	0R	C452	11S	IC74	3R	L47	5P	R45	7D	R180	2C	R339	2R		
C34	9A	C144	1E	C350	0R	C460	9U	IC75	10T	L48	6U	R46	6D	R181	1C	R340	2P		
C35	8B	C145	2E	C351	0S	C463	9V	IC76	10R	L49	7S	R47	7C	R182	2B	R341	3R		
C36	8B	C147	1D	C352	3L	C464	4S	IC77	11S	LC1	0M	R48	6C	R183	2B	R342	2R		
C37	8B	C148	2C	C353	0N	C465	8U	IC78	8S	Q1	7C	R49	5C	R184	2B	R343	1N		
C38	10A	C149	2C	C354	2V	C466	8V	IC79	9R	Q3	8A	R50	6D	R185	2B	R344	0N		
C39	9B	C150	2C	C355	3V	C467	9U	IC80	9T	Q4	5D	R51	5D	R186	2B	R345	0N		
C40	9A	C151	2B	C356	4V	C468	8V	IC81	9R	Q5	5E	R52	7D	R187	2A	R346	3S		
C41	9A	C152	2A	C357	6V	C469	7V	IC82	8S	Q6	5E	R53	5D	R188	1A	R347	11S		
C42	9A	C153	2B	C358	10V	C470	7U	IC83	3S	Q7	6F	R54	5C	R189	1B	R348	4J		
C43	9A	C154	2B	C359	9V	C471	3V	IC84	4K	Q8	8G	R55	6D	R190	1A	R352	0P		
C44	10A	C155	2A	C360	11S	C472	3U	IC85	4L	Q9	8G	R56	5D	R191	1B	R353	0S		
C45	7B	C156	1A	C361	5H	C473	7T	IC86	4L	Q10	11A	R57	5D	R192	2A	R354	4R		
C46	8A	C157	2A	C362	7H	C474	5U	IC87	5R	Q11	8C	R58	5D	R193	1A	R355	6H		
C47	5C	C158	1A	C363	10H	C475	7V	IC88	4N	Q12	8E	R59	5E	R194	1A	R356	5M		
C48	7C	C161	3F	C364	10K	C476	5V	IC89	3S	Q13	8C	R60	5E	R195	5G	R357	2R		
C49	6C	C162	4E	C365	10H	C477	6V	IC90	2J	Q14	8D	R61	5E	R196	4F	R358	4H		
C50	6E	C163	3F	C366	10K	C478	4U	IC91	3J	Q15	10F	R62	5E	R197	4F	R359	3H		
C51	5D	C164	4F	C367	11H	C479	5S	IC92	3P	Q16	10G	R63	6F	R198	4E	R364	4M		
C52	5D	C165	3E	C368	11K	C480	4V	IC93	5R	Q17	11A	R64	6F	R200	4E	R365	4M		
C53	5E	C166	4E	C369	11L	C481	4U	IC94	3M	Q18	10C	R65	7F	R201	4E	R369	1R		
C54	6E	C167	3D	C370	10L	C482	3V	IC95	4N	Q19	11D	R66	7G	R202	4E	R370	1R		
C55	6E	C168	4C	C371	9K	C483	2U	IC96	9V	Q20	11D	R67	8H	R203	3D	R380	2V		
C56	5F	C169	3C	C372	11N	C484	2V	IC97	11U	Q21	11E	R68	8F	R204	4E	R381	2U		
C57	6F	C170	4D	C373	10P	C485	2U	IC98	4R	Q22	11F	R69	8G	R205	3D	R382	9U		
C58	6F	C171	4C	C374	7L	C486	9U	IC99	3M	Q23	11G	R70	8G	R206	4D	R383	9U		
C59	5F	C172	4C	C375	9P	C487	7S	IC100	8J	Q30	6G	R71	7E	R208	4D	R384	6V		
C60	6F	C173	3C	C376	7J	C488	7R	IC102	1P	Q31	1F	R72	7E	R209	4D	R385	6U		
C61	6F	C174	3B	C377	8P	C490	1U	IC103	9T	Q32	2E	R73	7E	R210	4D	R386	1V		
C62	7G	C175	3B	C378	7M	C491	0U	IC104	2S	Q33	1D	R74	7E	R211	4D	R387	1V		
C63	8G	C176	4C	C379	7P	C492	9U	IC105	3R	Q34	2C	R75	6E	R212	4D	S1	10U		
C64	8F	C177	4A	C380	7J	CN2	0M	IC106	6G	Q35	2C	R76	7E	R213	4C	S2	11T		
C65	7F	C178	4A	C381	9K	D1	3K	IC107	8L	Q36	2C	R77	7D	R214	3D	TP1	9B		
C66	6E	C179	4A	C382	6J	D2	4R	IC108	8M	Q37	1B	R78	7D	R215	3B	TP2	8G		
C67	7F	C180	4B	C383	5K	D3	9B	IC109	8M	Q38	1A	R79	7D	R216	3A	TP3	10G		
C68	7E	C181	2G	C384	7P	D4	9C	IC110	9P	Q39	5G	R81	7E	R217	4C	TP4	11G		
C69	7E	C182	3G	C385	10N	D5	9A	IC111	6L	Q40	4E	R82	6D	R218	4B	TP5	7G		
C70	7D	C183	2F	C386	6M	D6	9A	IC112	6J	Q41	4E	R84	6D	R219	4B	TP6	2C		
C71	7C	C184	3F	C387	6M	IC1	6A	IC113	7M	Q42	3E	R86	8C	R220	4A	TP7	0A		
C72	6D	C185	3F	C388	5P	IC2	5C	IC114	11P	Q43	4E	R87	8C	R221	4A	TP8	4D		
C73	9D	C186	3F	C389	1S	IC3	10B	IC115	2R	Q44	4D	R88	8D	R222	4A	TP9	2A		
C74	8E	C187	2F	C390	6P	IC4	5D	IC120	4V	Q45	4D	R89	8D	R223	4A	TP10	3A		
C75	9E	C188	2E	C391	3P	IC5	7H	IC121	3T	Q46	4C	R90	8D	R224	4A	TP11	11A		
C76	8E	C189	3B	C392	0S	IC6	9F	IC122	3V	Q47	3C	R91	8E	R225	3A	TP30	4H		
C77	8F	C191	3B	C393	2N	IC7	6E	IC123	2T	Q48	3A	R92	8E	R226	4A	TP31	3J		
C78	9E	C192	3B	C394	2L	IC8	9E	IC124	3V	Q49	3A	R93	8E	R227	6G	TP32	0M		
C79	8C	C193	2A	C395	2K	IC9	9H	IC125	1T	Q50	4A	R94	8E	R228	2F	TP33	11V		
C80	8C	C194	2G	C396	1K	IC10	10F	IC126	6T	Q51	3A	R95	7C	R229	3F	TP34	5H		
C81	8D	C195	1G	C397	1J	IC11	10H	IC127	4T	Q52	6G	R96	7C	R230	3E	TP35	0U		
C82	8E	C196	4C	C398	1H	IC13	9D	IC128	6V	Q53	2F	R97	8D	R231	3E	VR1	8B		
C83	10G	C197	2G	C399	4H	IC14	0A	IC129	4V	Q54	2E	R98	8D	R232	3E	VR2	8A		
C84	8E	C300	2K	C400	1M	IC15	0B	IC130	5U	Q55	2D	R99	8D	R233	2E	VR3	6D		
C85	9F	C301	1K	C401	1P	IC20	2B	IC131	4T	Q56	2D	R100	8D	R234	2D	VR4	6F		
C86	9H	C302	2J	C402	3L	IC21	3D	IC132	8V	Q57	3D	R101	9H	R235	2D	VR5	9G		
C87	9G	C303	1J	C403	2S	IC22	1G	IC133	7V	Q58	3C	R102	10G	R237	2D	VR6	9F		
C88	11C	C304	2N	C404	4R	IC23	4C	IC134	7U	Q59	3A	R103	10G	R238	3C	VR7	10E		
C89	10D	C305	2N	C405	10T	IC30	9K	IC135	2V	Q60	2A	R104	8F	R239	3C	VR8	1E		
C90	10F	C306	2L	C406	10S	IC31	10K	IC136	8U	Q62	3A	R105	8G	R240	3C	VR9	3A		
C91	10D	C307	2L	C407	11S	IC32	11K	IC137	8V	R1	6B	R106	8F	R241	3C	VR10	2D		
C92	10E	C308	2L	C408	9S	IC33	11L	IC138	8U	R2	7B	R108	10C	R242	3C	VR12	1B		
C93	10D	C309	3S	C409	10S	IC34	10L	IC139	3T	R3	7C	R109	10C	R244	2B	VR13	1B		
C94	11D	C310	3J	C410	9T	IC35	9K	IC140	9V	R4	6B	R110	10C	R245	3B	VR14	2B		



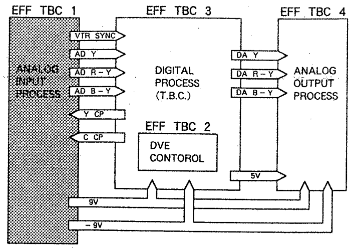
n in


SCK1099-N0A -P0A EFF TBC BOARD
CN2
AUTO FREEZE
ON OFF
A B C D E F G H J K L M N P R S U V

(T)

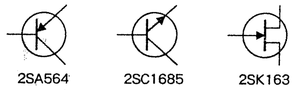
6.20 EFF TBC BOARD SCHEMATIC DIAGRAM-1 1 2

- Circuit diagram of EFF TBC board is divided into four sections.

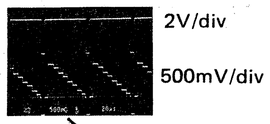


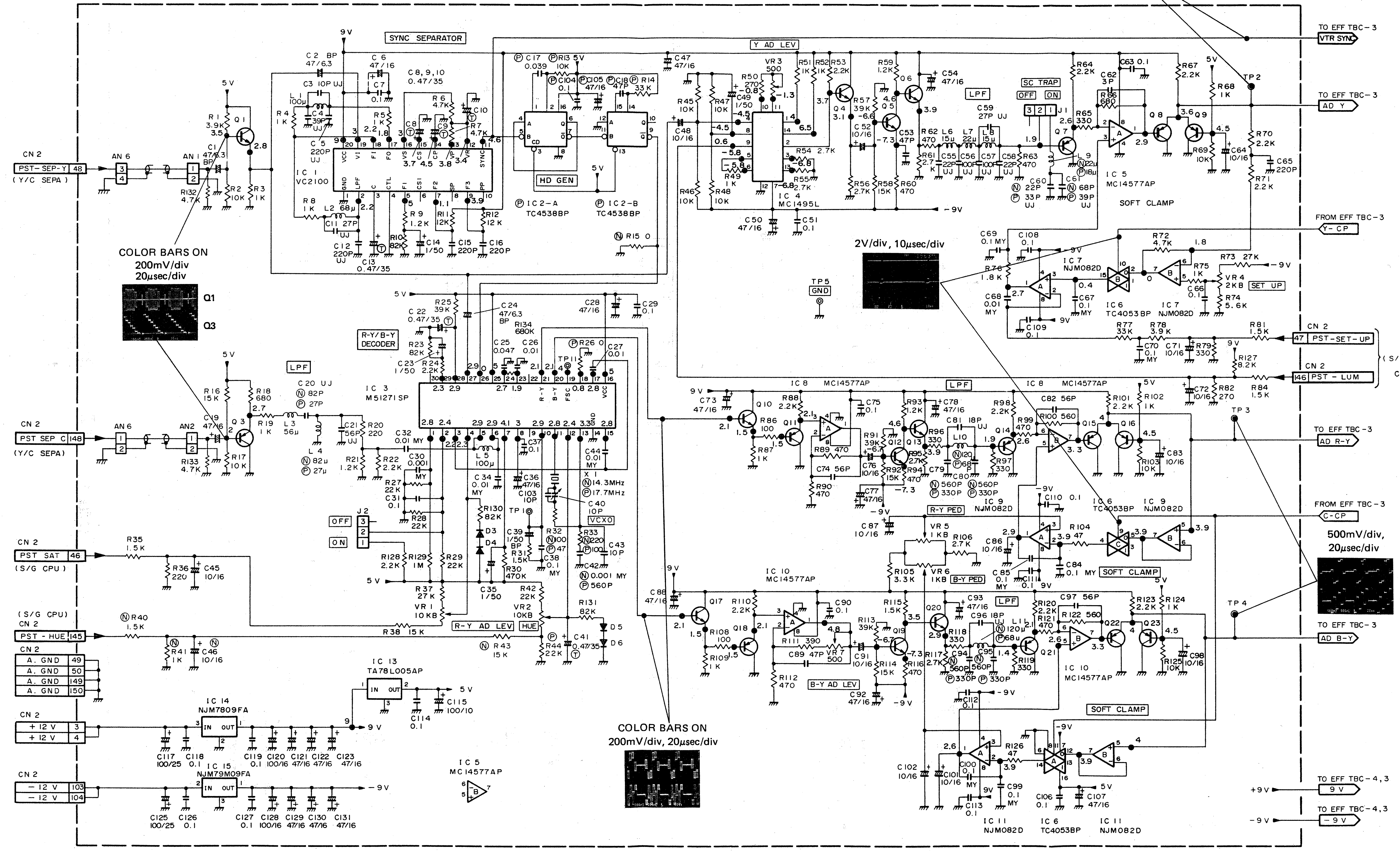
EFF TBC 1
EFF TBC 3
EFF TBC 4
ANALOG INPUT PROCESS
VTR SYNC
AD Y
AD R-Y
AD B-Y
Y CP
C CP
DIGITAL PROCESS (T.B.C.)
DA Y
DA R-Y
DA B-Y
ANALOG OUTPUT PROCESS
EFF TBC 2
DVE CONTOROL
5V
9V
-9V

Unless oherwise specified transistors and F.E.T.s are ;



2SA564
2SC1685
2SK163

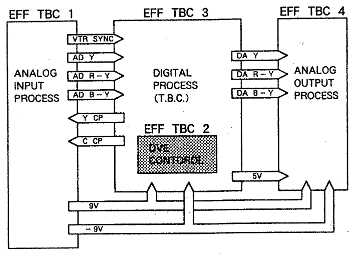


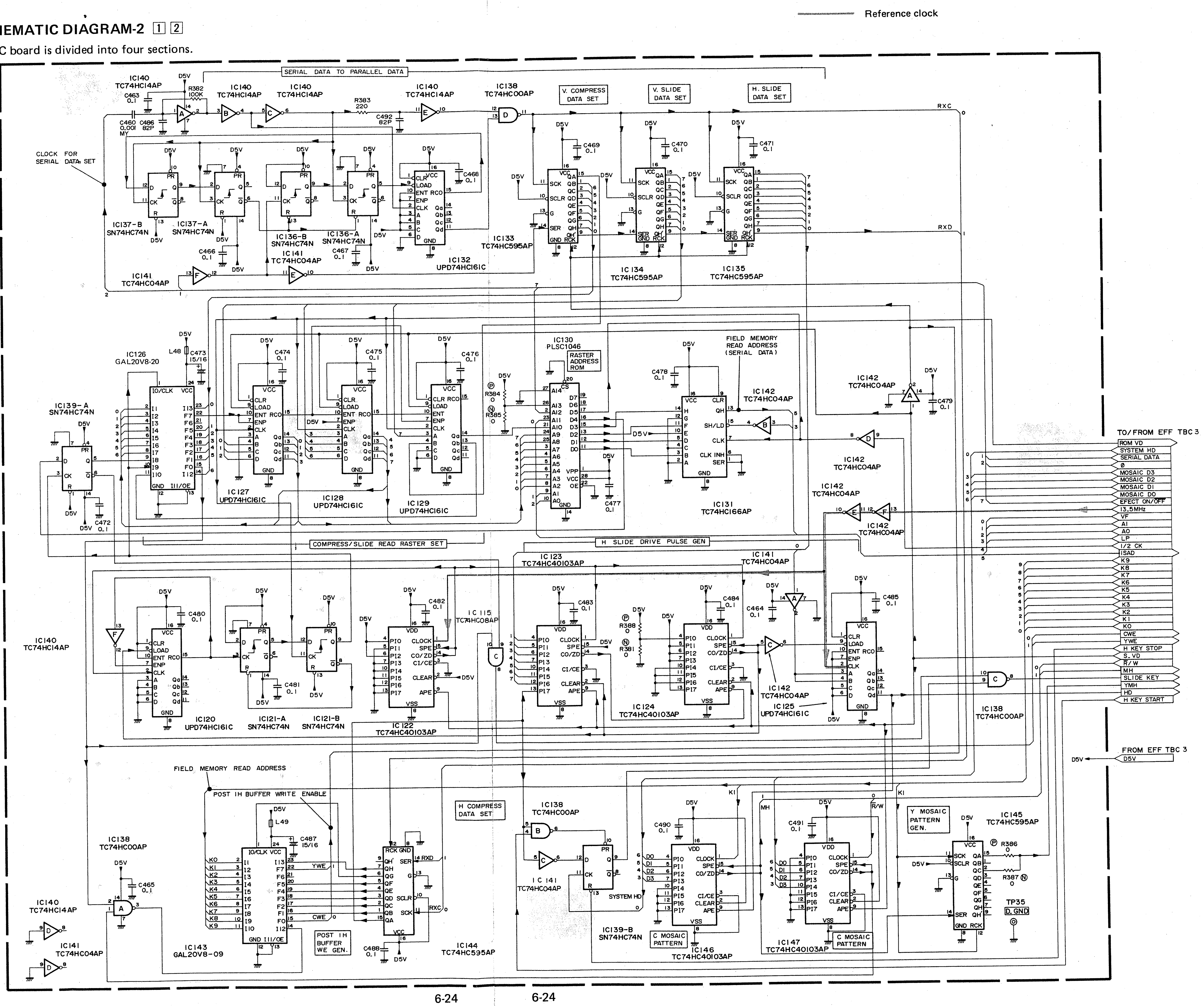


SYNC SEPARATOR
Y AD LEV
SC TRAP
OFF
ON
LPF
HD GEN
IC 1 VC2100
IC 2-A TC4538BP
IC 2-B TC4538BP
IC 3 M51271SP
R-Y/B-Y DECODER
IC 4 MC1495L
IC 5 MC14577AP
SOFT CLAMP
IC 6 TC4053BP
IC 7 NJM082D
SET UP
IC 8 MC14577AP
IC 9 NJM082D
R-Y PED
B-Y PED
IC 10 MC14577AP
IC 11 NJM082D
B-Y AD LEV
R-Y AD LEV
HUE
VCXO
X 1 (N)14.3MHz (P)17.7MHz
IC 13 TA78L005AP
IC 14 NJM7809FA
IC 15 NJM79M09FA
IC 5 MC14577AP
TP 1
TP 2
TP 3
TP 4
TP 5 GND
CN 2 PST-SEP-Y 48 (Y/C SEPA)
CN 2 PST SEP C 148 (Y/C SEPA)
CN 2 PST SAT 46 (S/G CPU)
(S/G CPU) CN 2 PST-HUE 145
CN 2 A. GND 49 A. GND 50 A. GND 149 A. GND 150
CN 2 +12 V 3 +12 V 4
CN 2 -12 V 103 -12 V 104
AN 1
AN 2
AN 6
J 1
J 2
COLOR BARS ON 200mV/div 20µsec/div
Q1
Q3
2V/div, 10µsec/div
500mV/div, 20µsec/div
COLOR BARS ON 200mV/div, 20µsec/div
TO EFF TBC-3 VTR SYNC
TO EFF TBC-3 AD Y
FROM EFF TBC-3 Y-CP
CN 2 47 PST-SET-UP
CN 2 146 PST-LUM
(S/G CPU)
TO EFF TBC-3 AD R-Y
FROM EFF TBC-3 C-CP
TO EFF TBC-3 AD B-Y
TO EFF TBC-4,3 9V
TO EFF TBC-4,3 -9V
+9V
-9V
9V
5V

6.21 EFF TBC BOARD SCHEMATIC DIAGRAM-2 1 2

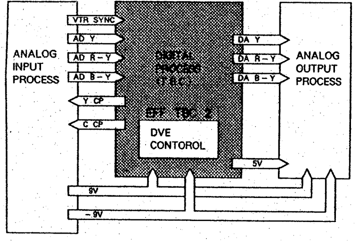
- Circuit diagram of EFF TBC board is divided into four sections.

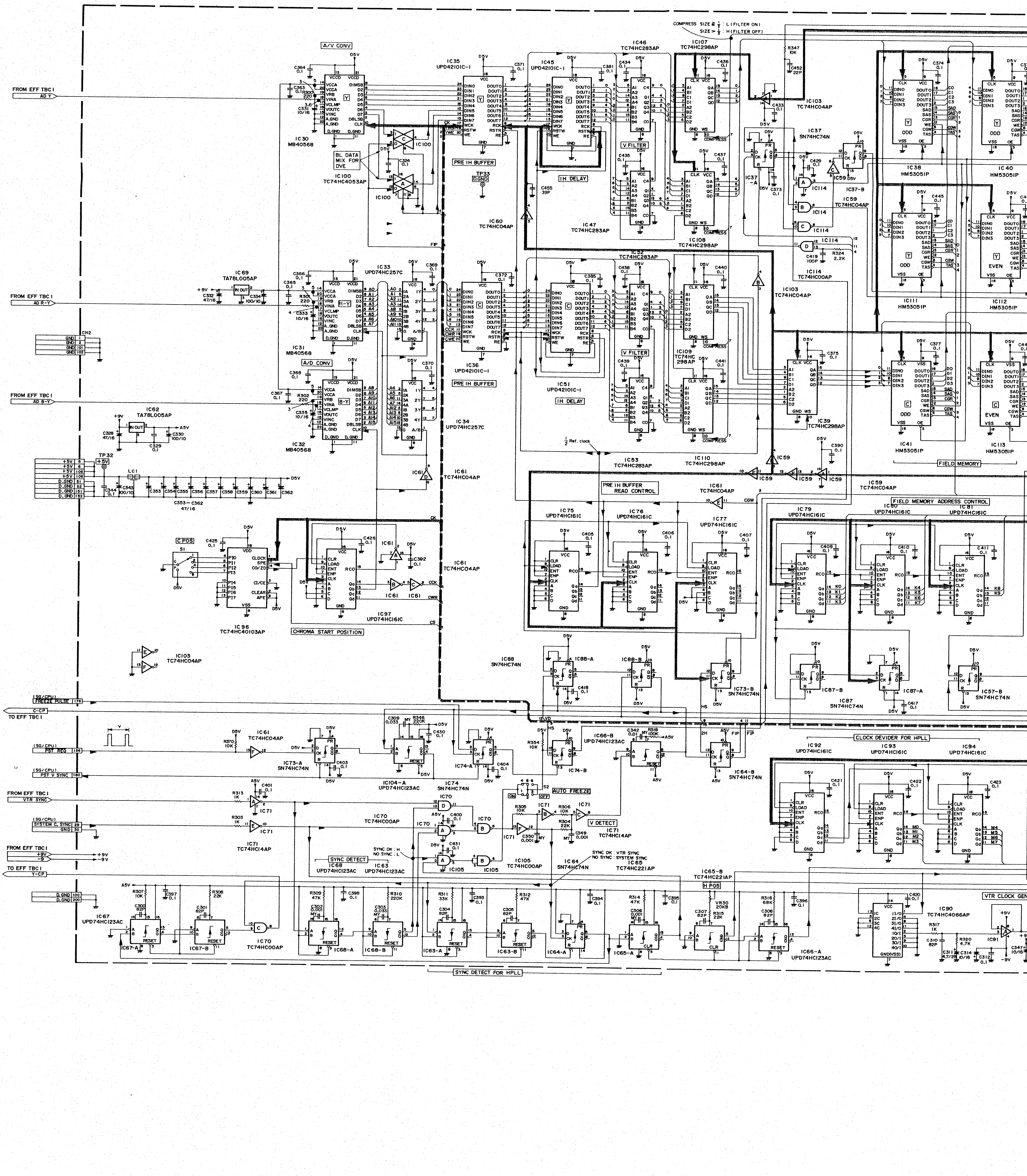

EFF TBC 1
EFF TBC 3
EFF TBC 4
ANALOG INPUT PROCESS
VTR SYNC
AD Y
AD R−Y
AD B−Y
Y CP
C CP
DIGITAL PROCESS (T.B.C.)
EFF TBC 2
DVE CONTOROL
DA Y
DA R−Y
DA B−Y
ANALOG OUTPUT PROCESS
5V
9V
−9V

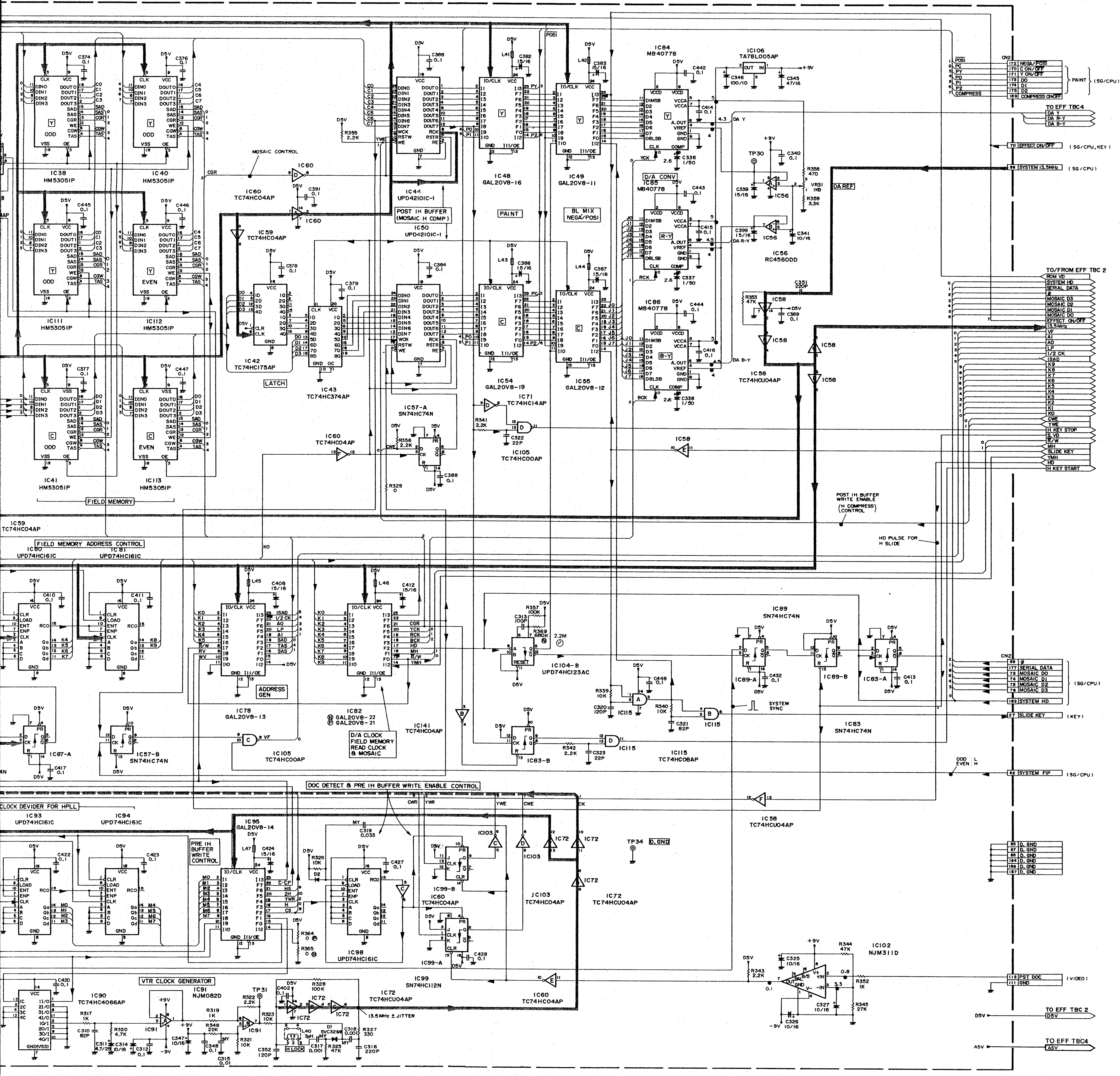

Reference clock
SERIAL DATA TO PARALLEL DATA
CLOCK FOR SERIAL DATA SET
IC140 TC74HC14AP
IC138 TC74HC00AP
V. COMPRESS DATA SET
V. SLIDE DATA SET
H. SLIDE DATA SET
RXC
RXD
IC137-B SN74HC74N
IC137-A SN74HC74N
IC136-B SN74HC74N
IC136-A SN74HC74N
IC141 TC74HC04AP
IC132 UPD74HC161C
IC133 TC74HC595AP
IC134 TC74HC595AP
IC135 TC74HC595AP
R382 100K
R383 220
C460 0.001 MY
C486 82P
C492 82P
C463 0.1
C466 0.1
C467 0.1
C468 0.1
C469 0.1
C470 0.1
C471 0.1
IC126 GAL20V8-20
L48
C473 15/16
IC139-A SN74HC74N
C472 0.1
IC127 UPD74HC161C
IC128 UPD74HC161C
IC129 UPD74HC161C
C474 0.1
C475 0.1
C476 0.1
IC130 PLSC1046
RASTER ADDRESS ROM
R384
R385
C477 0.1
C478 0.1
FIELD MEMORY READ ADDRESS (SERIAL DATA)
IC131 TC74HC166AP
IC142 TC74HC04AP
C479 0.1
COMPRESS/SLIDE READ RASTER SET
H SLIDE DRIVE PULSE GEN
IC123 TC74HC40103AP
IC141 TC74HC04AP
IC140 TC74HC14AP
C480 0.1
IC120 UPD74HC161C
IC121-A SN74HC74N
IC121-B SN74HC74N
C481 0.1
C482 0.1
IC115 TC74HC08AP
IC122 TC74HC40103AP
C483 0.1
R388
R381
IC124 TC74HC40103AP
C484 0.1
C464 0.1
IC142 TC74HC04AP
IC125 UPD74HC161C
C485 0.1
IC138 TC74HC00AP
TO/FROM EFF TBC 3
ROM VD
SYSTEM HD
SERIAL DATA
Ø
MOSAIC D3
MOSAIC D2
MOSAIC D1
MOSAIC D0
EFECT ON/OFF
13.5MHz
VF
A1
A0
LP
1/2 CK
ISAD
K9
K8
K7
K6
K5
K4
K3
K2
K1
K0
CWE
YWE
H KEY STOP
S.VD
R/W
MH
SLIDE KEY
YMH
HD
H KEY START
FROM EFF TBC 3
D5V
FIELD MEMORY READ ADDRESS
POST 1H BUFFER WRITE ENABLE
IC138 TC74HC00AP
C465 0.1
IC140 TC74HC14AP
IC141 TC74HC04AP
L49
C487 15/16
IC143 GAL20V8-09
POST 1H BUFFER WE GEN.
C488 0.1
IC144 TC74HC595AP
H COMPRESS DATA SET
IC141 TC74HC04AP
SYSTEM HD
IC139-B SN74HC74N
C490 0.1
C MOSAIC PATTERN
IC146 TC74HC40103AP
C491 0.1
IC147 TC74HC40103AP
C MOSAIC PATTERN
Y MOSAIC PATTERN GEN.
IC145 TC74HC595AP
R386
R387
TP35 D.GND

6.22 EFF TBC BOARD SCHEMATIC DIAGRAM-3 ① ②

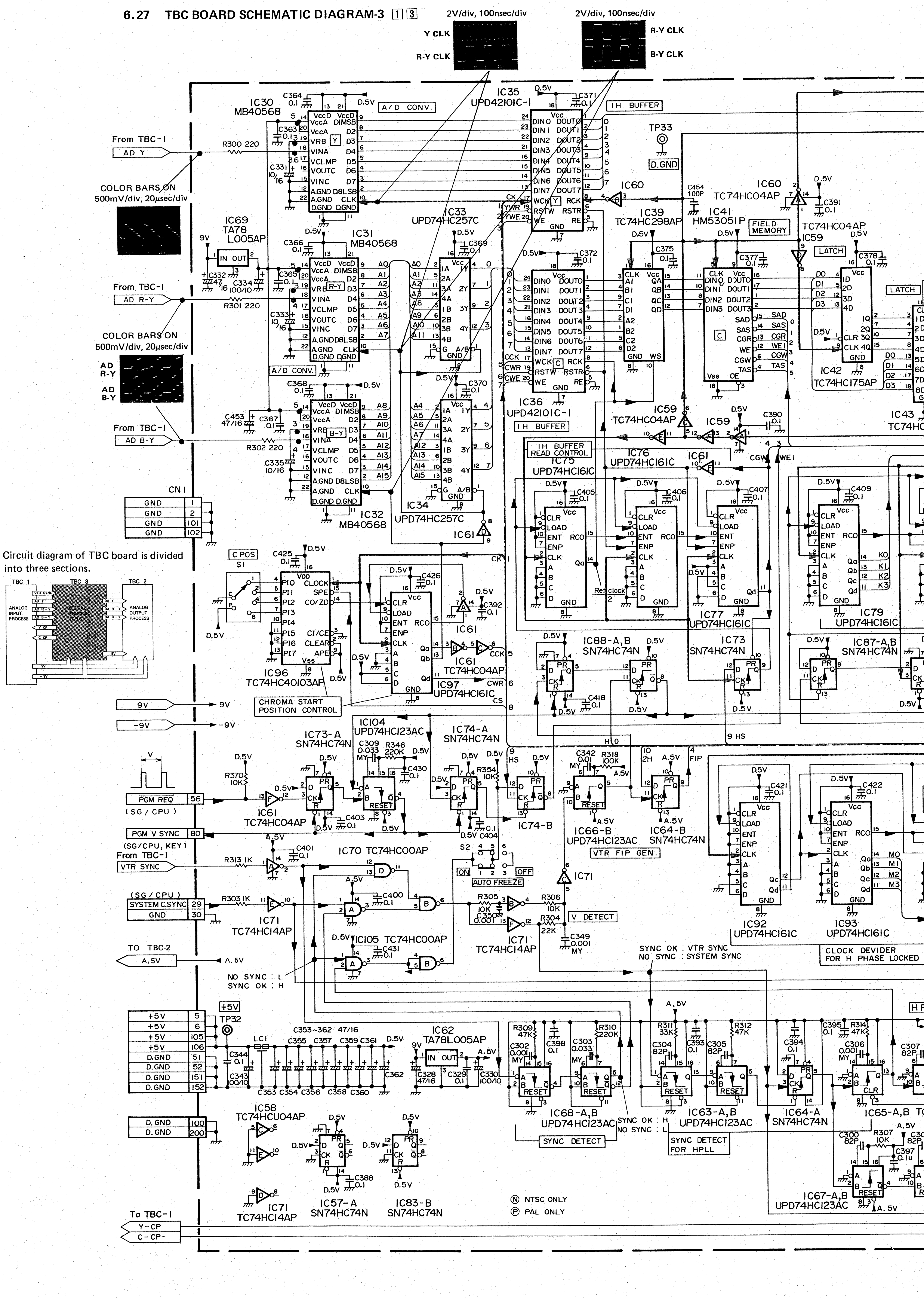
- Circuit diagram of EFF TBC board is divided into four sections.


EFF TBC 1
EFF TBC 3
EFF TBC 4
VTR SYNC
AD Y
AD R-Y
AD B-Y
ANALOG INPUT PROCESS
DIGITAL PROCESS (TBC)
DA Y
DA R-Y
DA B-Y
ANALOG OUTPUT PROCESS
Y CP
C CP
EFF TBC 2
DVE CONTOROL
5V
9V
-9V

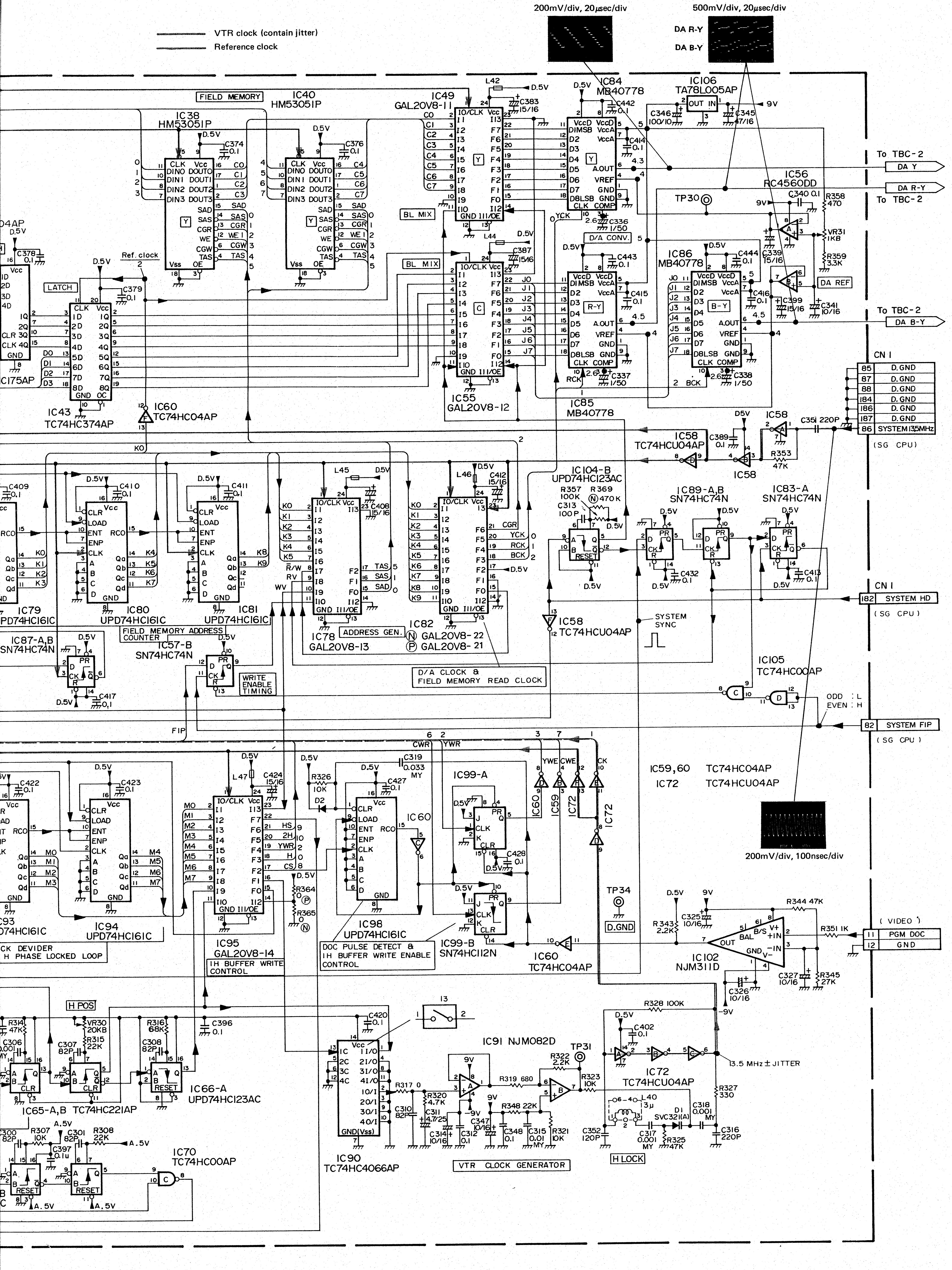

FROM EFF TBC1 AD Y
FROM EFF TBC1 AD R-Y
FROM EFF TBC1 AD B-Y
A/V CONV
A/D CONV
IC30 MB40568
IC31 MB40568
IC32 MB40568
IC35 UPD42101C-1
IC36 UPD42101C-1
IC45 UPD42101C-1
IC51 UPD42101C-1
PRE 1H BUFFER
1H DELAY
V FILTER
IC46 TC74HC283AP
IC47 TC74HC283AP
IC52 TC74HC283AP
IC53 TC74HC283AP
IC107 TC74HC298AP
IC108 TC74HC298AP
IC109 TC74HC298AP
IC110 TC74HC298AP
IC39 TC74HC298AP
IC100 TC74HC4053AP
BL DATA MIX FOR DVE
IC33 UPD74HC257C
IC34 UPD74HC257C
IC60 TC74HC04AP
IC61 TC74HC04AP
IC103 TC74HC04AP
IC37 SN74HC74N
IC114 TC74HC00AP
IC38 HM53051P
IC40 HM53051P
IC111 HM53051P
IC112 HM53051P
IC41 HM53051P
IC113 HM53051P
FIELD MEMORY
FIELD MEMORY ADDRESS CONTROL
IC69 TA78L005AP
IC62 TA78L005AP
CN2
TP32
TP33 D.GND
C POS
IC96 TC74HC40103AP
IC97 UPD74HC161C
CHROMA START POSITION
PRE 1H BUFFER READ CONTROL
IC75 UPD74HC161C
IC76 UPD74HC161C
IC77 UPD74HC161C
IC79 UPD74HC161C
IC80 UPD74HC161C
IC81 UPD74HC161C
IC88 SN74HC74N
IC73-B SN74HC74N
IC87 SN74HC74N
IC57-B SN74HC74N
CLOCK DEVIDER FOR HPLL
IC92 UPD74HC161C
IC93 UPD74HC161C
IC94 UPD74HC161C
(SG/CPU) FREEZE PULSE
C-CP TO EFF TBC1
(SG/CPU) PST REQ
(SG/CPU) PST V SYNC
FROM EFF TBC1 VTR SYNC
(SG/CPU) SYSTEM C. SYNC
FROM EFF TBC1 +9V -9
TO EFF TBC1 Y-CP
IC73-A SN74HC74N
IC104-A UPD74HC123AC
IC74 SN74HC74N
IC66-B UPD74HC123AC
IC64-B SN74HC74N
AUTO FREEZE
V DETECT
IC70 TC74HC00AP
IC71 TC74HC14AP
SYNC DETECT
IC68 UPD74HC123AC
IC63 UPD74HC123AC
IC105 TC74HC00AP
IC64 SN74HC74N
IC65 TC74HC221AP
SYNC OK : VTR SYNC
NO SYNC : SYSTEM SYNC
H POS
IC65-B TC74HC221AP
IC66-A UPD74HC123AC
IC67 UPD74HC123AC
VTR CLOCK GEN
IC90 TC74HC4066AP
IC91
SYNC DETECT FOR HPLL
COMPRESS SIZE ≧ 1/2 : L (FILTER ON)
SIZE > 1/2 : H (FILTER OFF)


IC38 HM53051P
IC40 HM53051P
IC111 HM53051P
IC112 HM53051P
IC41 HM53051P
IC113 HM53051P
FIELD MEMORY
MOSAIC CONTROL
IC60 TC74HC04AP
IC59 TC74HC04AP
IC42 TC74HC175AP
LATCH
IC43 TC74HC374AP
IC44 UPD42101C-1
POST 1H BUFFER (MOSAIC H COMP)
IC50 UPD42101C-1
IC48 GAL20V8-16
PAINT
IC49 GAL20V8-11
BL MIX NEGA/POSI
IC54 GAL20V8-19
IC55 GAL20V8-12
IC57-A SN74HC74N
IC71 TC74HC14AP
IC105 TC74HC00AP
IC84 MB40778
IC106 TA78L005AP
D/A CONV
IC85 MB40778
IC86 MB40778
IC56 RC4560DD
IC58 TC74HCU04AP
DA Y
DA R-Y
DA B-Y
DA REF
TP30
PAINT (SG/CPU)
TO EFF TBC4
EFFECT ON/OFF (SG/CPU,KEY)
SYSTEM 13.5MHz (SG/CPU)
TO/FROM EFF TBC 2
POST 1H BUFFER WRITE ENABLE (H COMPRESS) CONTROL
HD PULSE FOR H SLIDE
IC59 TC74HC04AP
FIELD MEMORY ADDRESS CONTROL
IC80 UPD74HC161C
IC81 UPD74HC161C
IC78 GAL20V8-13
ADDRESS GEN
IC82 GAL20V8-22 GAL20V8-21
D/A CLOCK FIELD MEMORY READ CLOCK & MOSAIC
IC141 TC74HC04AP
IC104-B UPD74HC123AC
IC89 SN74HC74N
IC89-A
IC89-B
IC83-A
IC83 SN74HC74N
IC83-B
IC115 TC74HC08AP
SYSTEM SYNC
IC67-A
IC57-B SN74HC74N
IC105 TC74HC00AP
ODD : L EVEN : H
SYSTEM FIP (SG/CPU)
SERIAL DATA
MOSAIC D0
MOSAIC D1
MOSAIC D2
MOSAIC D3
SYSTEM HD
SLIDE KEY (KEY)
DOC DETECT & PRE 1H BUFFER WRITE ENABLE CONTROL
CLOCK DEVIDER FOR HPLL
IC93 UPD74HC161C
IC94 UPD74HC161C
IC95 GAL20V8-14
PRE 1H BUFFER WRITE CONTROL
IC98 UPD74HC161C
IC99-A
IC99-B
IC99 SN74HC112N
IC60 TC74HC04AP
IC103 TC74HC04AP
IC72 TC74HCU04AP
IC58 TC74HCU04AP
TP34 D.GND
IC90 TC74HC4066AP
VTR CLOCK GENERATOR
IC91 NJM082D
TP31
13.5MHz ± JITTER
H LOCK
IC102 NJM311D
PST DOC (VIDEO)
TO EFF TBC 2 D5V
TO EFF TBC4 A5V

6.27 TBC BOARD SCHEMATIC DIAGRAM-3 1 3

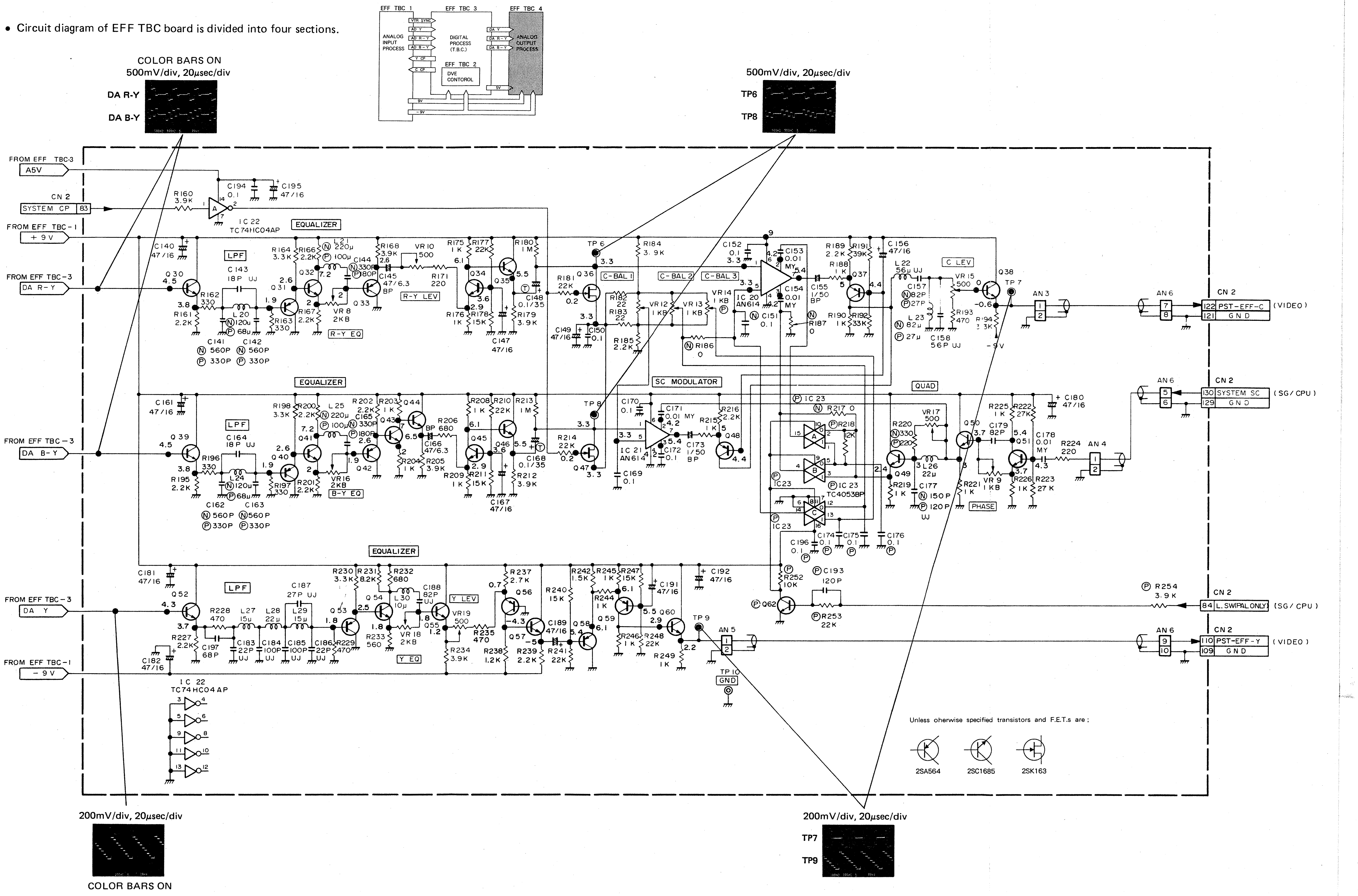

2V/div, 100nsec/div
Y CLK
R-Y CLK
2V/div, 100nsec/div
R-Y CLK
B-Y CLK
From TBC-I
AD Y
COLOR BARS ON
500mV/div, 20μsec/div
From TBC-I
AD R-Y
COLOR BARS ON
500mV/div, 20μsec/div
AD R-Y
AD B-Y
From TBC-I
AD B-Y
IC30 MB40568
A/D CONV.
IC31 MB40568
IC32 MB40568
IC69 TA78L005AP
IC33 UPD74HC257C
IC34 UPD74HC257C
IC35 UPD42101C-1
1H BUFFER
IC36 UPD42101C-1
1H BUFFER
IC39 TC74HC298AP
IC41 HM53051P
FIELD MEMORY
IC60 TC74HC04AP
IC59 TC74HC04AP
LATCH
IC42 TC74HC175AP
IC43
TP33
D.GND
1H BUFFER READ CONTROL
IC75 UPD74HC161C
IC76 UPD74HC161C
IC61
IC77 UPD74HC161C
IC79 UPD74HC161C
Ref clock
IC88-A,B SN74HC74N
IC73 SN74HC74N
IC87-A,B SN74HC74N
CN1
GND 1
GND 2
GND 101
GND 102
C POS
S1
IC96 TC74HC40103AP
CHROMA START POSITION CONTROL
IC97 UPD74HC161C
IC61 TC74HC04AP
9V
-9V
IC73-A SN74HC74N
IC104 UPD74HC123AC
IC74-A SN74HC74N
IC74-B
IC66-B UPD74HC123AC
IC64-B SN74HC74N
VTR FIP GEN.
PGM REQ 56
(SG/CPU)
IC61 TC74HC04AP
PGM V SYNC 80
(SG/CPU, KEY)
From TBC-I
VTR SYNC
IC70 TC74HC00AP
S2
ON
OFF
AUTO FREEZE
IC71
(SG/CPU)
SYSTEM C.SYNC 29
GND 30
IC71 TC74HC14AP
V DETECT
IC71 TC74HC14AP
IC105 TC74HC00AP
TO TBC-2
A.5V
NO SYNC : L
SYNC OK : H
SYNC OK : VTR SYNC
NO SYNC : SYSTEM SYNC
IC92 UPD74HC161C
IC93 UPD74HC161C
CLOCK DEVIDER FOR H PHASE LOCKED
+5V
TP32
+5V 5
+5V 6
+5V 105
+5V 106
D.GND 51
D.GND 52
D.GND 151
D.GND 152
LC1
C353~362 47/16
IC62 TA78L005AP
IC68-A,B UPD74HC123AC
SYNC DETECT
SYNC OK : H
NO SYNC : L
IC63-A,B UPD74HC123AC
SYNC DETECT FOR HPLL
IC64-A SN74HC74N
IC65-A,B
IC67-A,B UPD74HC123AC
D.GND 100
D.GND 200
IC58 TC74HCU04AP
IC57-A SN74HC74N
IC83-B SN74HC74N
IC71 TC74HC14AP
Ⓝ NTSC ONLY
Ⓟ PAL ONLY
To TBC-1
Y-CP
C-CP
TBC 1
TBC 3
TBC 2
ANALOG INPUT PROCESS
DIGITAL PROCESS
ANALOG OUTPUT PROCESS

- Circuit diagram of TBC board is divided into three sections.


VTR clock (contain jitter)
Reference clock
200mV/div, 20µsec/div
500mV/div, 20µsec/div
DA R-Y
DA B-Y
FIELD MEMORY
IC38 HM53051P
IC40 HM53051P
IC49 GAL20V8-11
IC84 MB40778
IC106 TA78L005AP
IC55 GAL20V8-12
IC85 MB40778
IC86 MB40778
IC56 RC4560DD
D/A CONV.
BL MIX
DA REF
To TBC-2
DA Y
DA R-Y
DA B-Y
TP30
CN I
D.GND
SYSTEM 13.5MHz
(SG CPU)
IC43 TC74HC374AP
LATCH
Ref. clock
IC60 TC74HC04AP
IC58 TC74HCU04AP
IC104-B UPD74HC123AC
IC89-A,B SN74HC74N
IC83-A SN74HC74N
SYSTEM HD
SYSTEM SYNC
IC79 UPD74HC161C
IC80 UPD74HC161C
IC81 UPD74HC161C
FIELD MEMORY ADDRESS COUNTER
IC78 GAL20V8-13
ADDRESS GEN.
IC82 Ⓝ GAL20V8-22 Ⓟ GAL20V8-21
IC87-A,B SN74HC74N
IC57-B SN74HC74N
WRITE ENABLE TIMING
D/A CLOCK & FIELD MEMORY READ CLOCK
IC105 TC74HC00AP
ODD : L
EVEN : H
SYSTEM FIP
IC59,60 TC74HC04AP
IC72 TC74HCU04AP
200mV/div, 100nsec/div
IC93 UPD74HC161C
IC94 UPD74HC161C
CK DEVIDER
H PHASE LOCKED LOOP
IC95 GAL20V8-14
1H BUFFER WRITE CONTROL
IC98 UPD74HC161C
DOC PULSE DETECT & 1H BUFFER WRITE ENABLE CONTROL
IC99-A
IC99-B SN74HC112N
IC60 TC74HC04AP
TP34
D.GND
IC102 NJM311D
(VIDEO)
PGM DOC
GND
H POS
IC66-A UPD74HC123AC
IC65-A,B TC74HC221AP
IC70 TC74HC00AP
IC90 TC74HC4066AP
IC91 NJM082D
TP31
VTR CLOCK GENERATOR
IC72 TC74HCU04AP
13.5 MHz ± JITTER
H LOCK

6.23 EFF TBC BOARD SCHEMATIC DIAGRAM-4 1 2

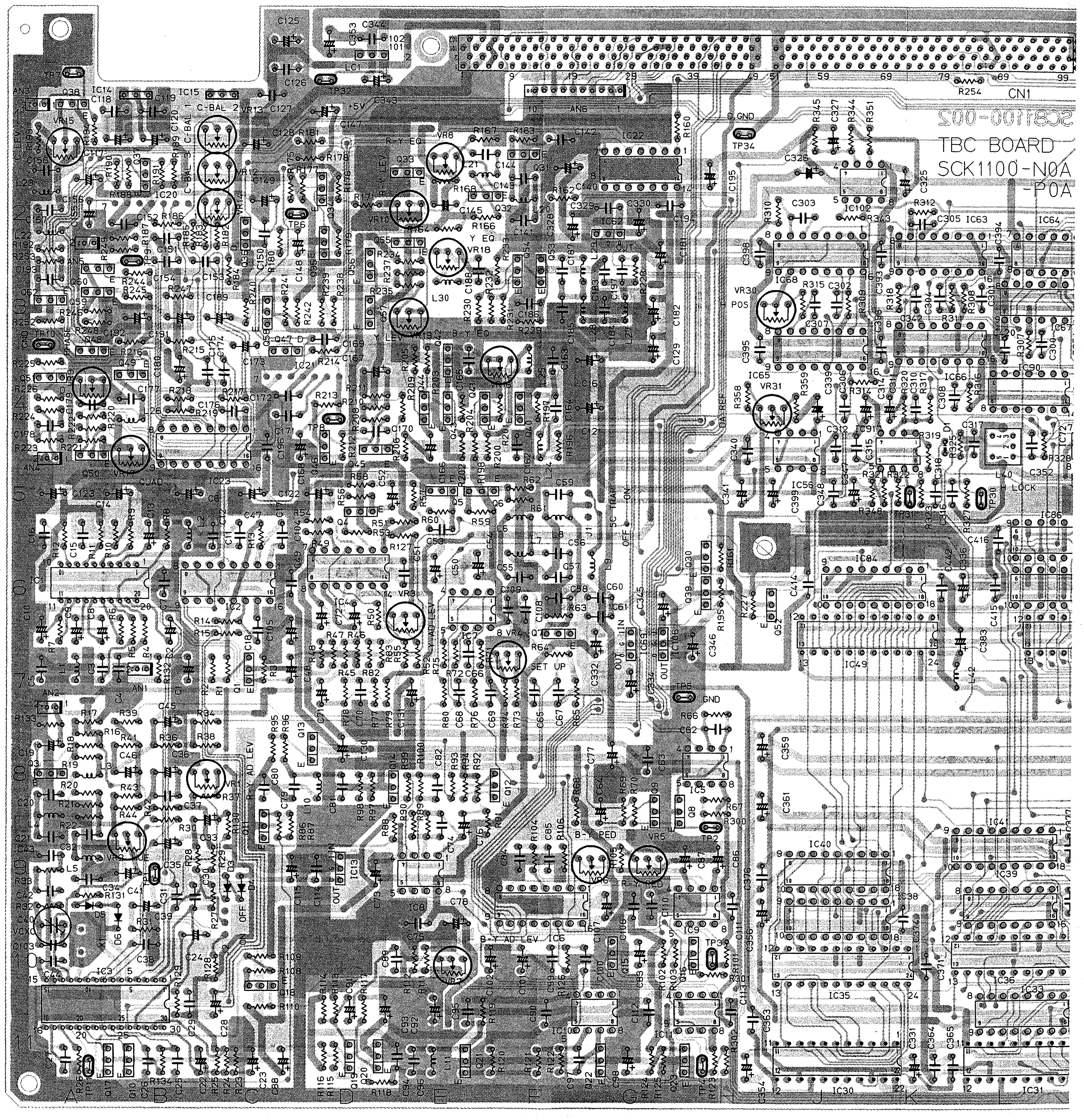
- Circuit diagram of EFF TBC board is divided into four sections.


EFF TBC 1
EFF TBC 3
EFF TBC 4
EFF TBC 2
ANALOG INPUT PROCESS
DIGITAL PROCESS (T.B.C.)
ANALOG OUTPUT PROCESS
DVE CONTOROL
VTR SYNC
AD Y
AD R-Y
AD B-Y
Y CP
C CP
DA Y
DA R-Y
DA B-Y
5V
9V
-9V
COLOR BARS ON
500mV/div, 20μsec/div
DA R-Y
DA B-Y
TP6
TP8
FROM EFF TBC-3
A5V
CN 2
SYSTEM CP
83
FROM EFF TBC-1
+ 9 V
FROM EFF TBC-3
DA R-Y
FROM EFF TBC-3
DA B-Y
FROM EFF TBC-3
DA Y
FROM EFF TBC-1
- 9 V
IC 22
TC74HC04AP
EQUALIZER
LPF
R-Y LEV
R-Y EQ
B-Y EQ
Y LEV
Y EQ
C-BAL 1
C-BAL 2
C-BAL 3
C LEV
SC MODULATOR
QUAD
PHASE
IC 20
AN614
IC 21
AN614
IC 23
TC4053BP
TP 6
TP 7
TP 8
TP 9
TP 10
GND
AN 3
AN 4
AN 5
AN 6
122 PST-EFF-C
121 GND
(VIDEO)
130 SYSTEM SC
129 GND
(SG/CPU)
84 L.SW(PAL ONLY)
(SG/CPU)
110 PST-EFF-Y
109 GND
(VIDEO)
200mV/div, 20μsec/div
COLOR BARS ON
200mV/div, 20μsec/div
TP7
TP9
Unless oherwise specified transistors and F.E.T.s are ;
2SA564
2SC1685
2SK163

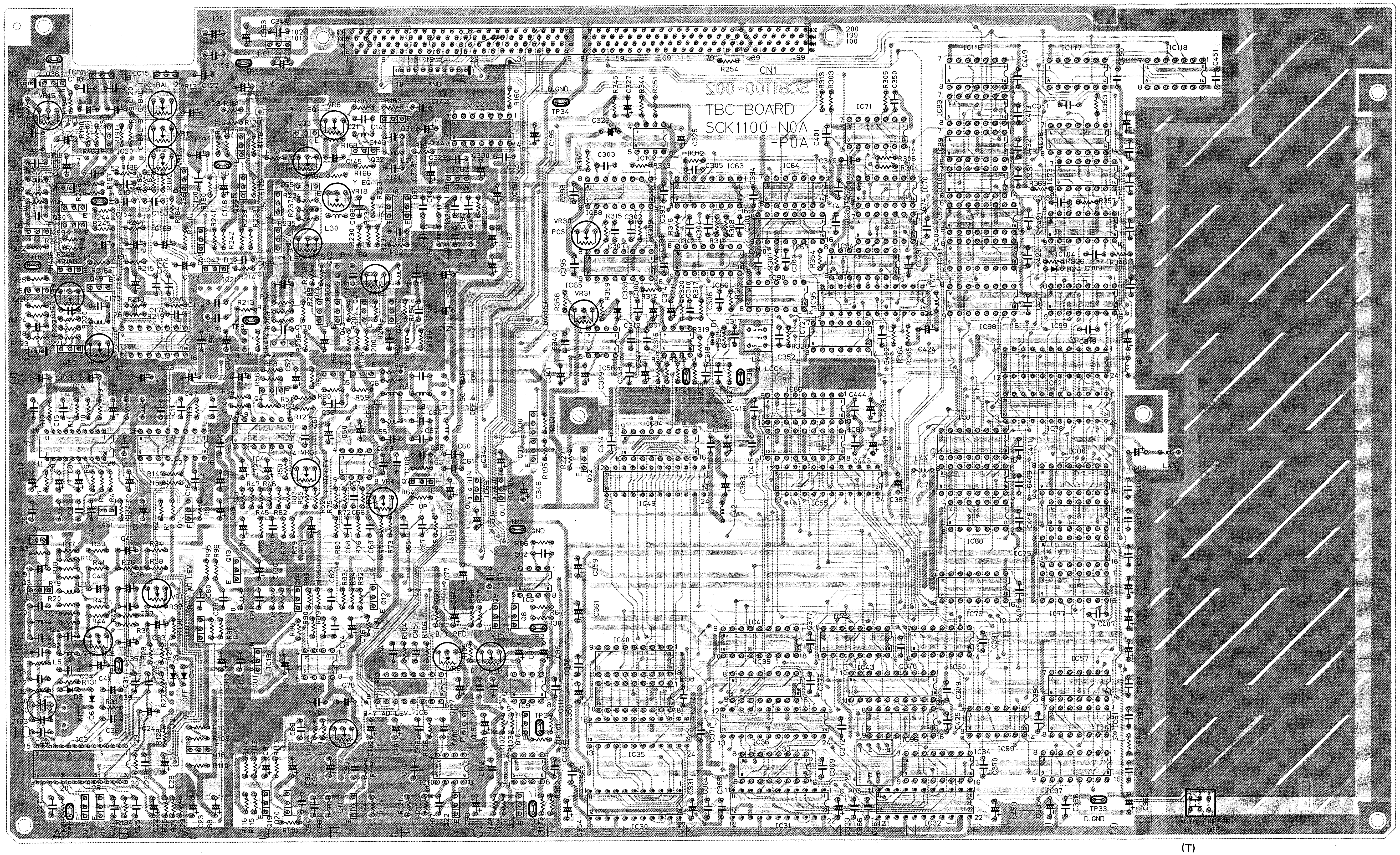
6.24 TBC CIRCUIT BOARD

- **Parts Location Table of TBC board**
  - Code which consists of numeral and alphabet and written on the right side of symbol number indicates parts location in the circuit diagram. Each indication may make an error by one section.
  - Symbol numbers are alphabetically listed.

AN1	7B	C95	10E	C311	4J	C424	4N	IC104	2S	R10	5A	R116	11C	R253	2A		
AN2	7A	C96	11D	C312	4J	C425	10N	IC105	2P	R11	5A	R117	10D	R254	0K		
AN3	1A	C97	11F	C313	2R	C426	10S	IC106	6G	R12	5A	R118	11D	R300	8G		
AN4	4A	C98	11G	C314	4J	C427	4P	IC116	0P	R13	5C	R119	10E	R301	10G		
AN5	2A	C99	10F	C315	4J	C428	4S	IC117	0R	R14	6C	R120	11E	R302	11H		
AN6	0G	C100	10F	C316	5K	C430	3S	IC118	0T	R15	6C	R121	11F	R303	1M		
C1	7B	C101	10F	C317	4K	C431	2P	J1	5F	R16	7A	R122	11F	R304	2N		
C2	6B	C102	10E	C318	5K	C432	2P	J2	9B	R17	7A	R123	11H	R305	1M		
C3	6A	C103	10A	C319	4R	C442	6K	L1	6A	R18	7A	R124	11G	R306	2N		
C4	6A	C104	6C	C325	2K	C443	6M	L2	5B	R19	8A	R125	11G	R307	3L		
C5	7A	C105	6C	C326	1J	C444	5M	L3	8A	R20	8A	R126	10F	R308	2K		
C6	5B	C106	9G	C327	1J	C449	1P	L4	8A	R21	8A	R127	5D	R309	3J		
C7	6B	C107	9F	C328	2F	C450	1S	L5	9A	R22	8A	R128	10B	R310	2H		
C8	6A	C108	6F	C329	2G	C451	1T	L6	5E	R23	11B	R129	10B	R311	2K		
C9	6A	C109	6E	C330	2G	C453	11P	L7	5F	R24	11B	R130	8B	R312	2K		
C10	6A	C110	9G	C331	11K	CN1	0M	L8	5F	R25	11B	R131	9A	R313	1M		
C11	5C	C111	9H	C332	6F	D1	4K	L9	5F	R26	11A	R132	7B	R314	4J		
C12	5B	C112	10G	C333	11M	D2	3R	L10	8C	R27	9B	R133	7A	R315	3H		
C13	5B	C113	10H	C334	7G	D3	9B	L11	11E	R28	8B	R134	11B	R316	4K		
C14	5A	C114	9C	C335	11R	D4	9C	L20	2F	R29	9B	R160	1G	R317	4K		
C15	5A	C115	9C	C336	6K	D5	9A	L21	1E	R30	8B	R161	6H	R318	2J		
C16	5A	C117	1A	C337	6M	D6	9A	L22	2A	R31	9A	R162	2F	R319	4K		
C17	5C	C118	1A	C338	5M	IC1	6A	L23	1A	R32	9A	R163	1E	R320	4K		
C18	6C	C119	1B	C339	4J	IC2	5C	L24	4F	R33	9A	R164	2E	R321	5J		
C19	7A	C120	1B	C340	4H	IC3	10B	L25	3F	R34	7B	R166	2E	R322	5J		
C20	8A	C121	4F	C341	5H	IC4	5D	L26	4B	R36	7B	R167	1E	R323	5K		
C21	8A	C122	5C	C342	3K	IC5	7H	L27	3G	R37	8B	R168	1E	R325	4K		
C22	11B	C123	5A	C343	0D	IC6	9F	L28	3F	R38	7B	R171	2D	R326	3R		
C23	11C	C125	0C	C344	0D	IC7	6E	L29	2F	R39	7A	R175	1C	R327	5K		
C24	9B	C126	0C	C345	6G	IC8	9E	L30	2E	R41	7A	R176	2D	R328	4L		
C25	11B	C127	0C	C346	6G	IC9	9H	L40	4L	R42	8B	R177	2C	R343	2J		
C26	11B	C128	1C	C347	5J	IC10	10F	L42	7K	R43	8A	R178	1C	R344	1J		
C27	11A	C129	3G	C348	5J	IC11	10H	L44	6N	R44	8A	R179	2D	R345	1J		
C28	10B	C130	8D	C349	2M	IC13	9D	L45	6S	R45	7D	R180	2C	R346	3S		
C29	10B	C131	7D	C350	1N	IC14	0A	L46	5S	R46	6D	R181	1C	R348	5J		
C30	9B	C140	1F	C351	1R	IC15	0B	L47	4N	R47	7D	R182	2B	R351	1J		
C31	9B	C141	2F	C352	4L	IC20	2B	LC1	0D	R48	6C	R183	2B	R353	1R		
C32	8A	C142	1F	C353	0C	IC21	3D	Q1	7C	R49	5C	R184	2B	R354	3L		
C33	8B	C143	1F	C354	11H	IC22	1G	Q3	8A	R50	6D	R185	2B	R357	2R		
C34	9A	C144	1E	C355	1S	IC23	4C	Q4	5D	R51	5D	R186	2B	R358	4H		
C35	8B	C145	2E	C356	9H	IC30	11J	Q5	5E	R52	7D	R187	2A	R359	4H		
C36	8B	C147	1D	C357	8S	IC31	11M	Q6	5E	R53	5D	R188	1A	R364	4M		
C37	8B	C148	2C	C358	8S	IC32	11P	Q7	6F	R54	5C	R189	1B	R365	4N		
C38	10A	C149	2C	C359	8H	IC33	10L	Q8	8G	R55	6D	R190	1A	R369	2P		
C39	9B	C150	2C	C360	9S	IC34	10P	Q9	8G	R56	5D	R191	1B	R370	10S		
C40	9A	C151	2B	C361	8H	IC35	10K	Q10	11A	R57	5D	R192	2A	S1	10M		
C41	9A	C152	2A	C362	11S	IC36	9M	Q11	8C	R58	5D	R193	1A	S2	11T		
C42	9A	C153	2B	C363	10H	IC38	9J	Q12	8E	R59	5E	R194	1A	TP1	9B		
C43	9A	C154	2B	C364	11K	IC39	9L	Q13	8C	R60	5E	R195	6H	TP2	8H		
C44	10A	C155	2A	C365	11K	IC40	9J	Q14	8D	R61	5E	R196	4F	TP3	10H		
C45	7B	C156	1A	C366	11M	IC41	8L	Q15	10F	R62	5E	R197	4F	TP4	11G		
C46	8A	C157	2A	C367	11M	IC42	8M	Q16	10G	R63	6F	R198	4E	TP5	7G		
C47	5C	C158	1A	C368	11R	IC43	9N	Q17	11A	R64	6F	R200	4E	TP6	2C		
C48	7C	C161	3F	C369	10L	IC49	6K	Q18	10C	R65	7F	R201	4E	TP7	0A		
C49	6C	C162	4E	C370	10P	IC55	6M	Q19	11D	R66	7G	R202	4E	TP8	4D		
C50	6E	C163	3F	C371	10K	IC56	4J	Q20	11D	R67	8H	R203	3D	TP9	2A		
C51	5D	C164	4F	C372	10M	IC57	9R	Q21	11E	R68	8F	R204	4E	TP10	3A		
C52	5D	C165	3E	C374	9K	IC58	1R	Q22	11F	R69	8G	R205	3D	TP11	11A		
C53	5E	C166	4E	C375	9L	IC59	9P	Q23	11G	R70	8G	R206	4D	TP30	5K		
C54	6E	C167	3D	C376	9H	IC60	8P	Q30	6G	R71	7E	R208	4D	TP31	5K		
C55	6E	C168	4C	C377	9L	IC61	9R	Q31	1F	R72	7E	R209	4D	TP32	0C		
C56	5F	C169	3C	C378	9N	IC62	2G	Q32	2E	R73	7E	R210	4D	TP33	11R		
C57	6F	C170	4D	C379	9N	IC63	2K	Q33	1D	R74	7E	R211	4D	TP34	1H		
C58	6F	C171	4C	C383	6K	IC64	2M	Q34	2C	R75	6E	R212	4D	VR1	8B		
C59	5F	C172	4C	C387	6N	IC65	3J	Q35	2C	R76	7E	R213	4C	VR2	8A		
C60	6F	C173	3C	C388	9S	IC66	3K	Q36	2C	R77	7D	R214	3D	VR3	6D		
C61	6F	C174	3B	C389	2S	IC67	2M	Q37	1B	R78	7D	R215	3B	VR4	6E		
C62	7G	C175	3B	C390	10P	IC68	2J	Q38	1A	R79	7D	R216	3B	VR5	9G		
C63	8G	C176	4C	C391	9P	IC69	6G	Q39	6G	R80	7E	R217	4C	VR6	9F		
C64	8F	C177	4B	C392	10S	IC70	2N	Q40	4E	R82	6D	R218	4B	VR7	10E		
C65	7F	C178	4A	C393	2J	IC71	1N	Q41	4E	R83	6D	R219	4B	VR8	1E		
C66	6E	C179	4A	C394	2L	IC72	4M	Q42	3E	R86	8C	R220	4A	VR9	3A		
C67	7F	C180	3B	C395	3H	IC73	2S	Q43	4E	R87	8C	R221	4A	VR10	2D		
C68	7E	C181	2G	C396	3J	IC74	2N	Q44	4D	R88	8D	R222	4A	VR12	1B		
C69	7E	C182	3G	C397	3M	IC75	7R	Q45	4D	R89	8E	R223	4A	VR13	1B		
C70	7D	C183	2F	C398	2H	IC76	8P	Q46	4C	R90	8D	R224	4A	VR14	2B		
C71	7C	C184	3F	C399	5H	IC77	8R	Q47	3C	R91	8E	R225	3A	VR15	1A		
C72	6D	C185	3F	C400	2M	IC78	5R	Q48	3A	R92	8E	R226	4A	VR16	3E		
C73	9D	C186	3F	C401	1M	IC79	6P	Q49	3B	R93	8E	R227	6H	VR17	4B		
C74	8E	C187	2F	C402	4M	IC80	6R	Q50	4A	R94	8E	R228	2G	VR18	2E		
C75	9E	C188	2E	C403	2S	IC81	6P	Q51	3A	R95	7C	R229	3F	VR19	3D		
C76	8E	C189	3B	C404	3N	IC82	4R	Q52	6H	R96	7C	R230	3E	VR30	3H		
C77	8F	C191	3B	C405	7S	IC83	1P	Q53	2F	R97	8D	R231	3E	VR31	4H		
C78	9E	C192	3B	C406	8P	IC84	6K	Q54	2E	R98	8D	R232	3E	X1	9A		
C79	8C	C193	2A	C407	8R	IC85	6M	Q55	2D	R99	8D	R233	2E				
C80	8C	C194	2G	C408	6S	IC86	5M	Q56	2D	R100	8D	R234	2D				
C81	8D	C195	1G	C409	6P	IC87	7R	Q57	3D	R101	9H	R235	2D				
C82	8E	C196	4C	C410	6S	IC88	7P	Q58	3C	R102	9G	R237	2D				
C83	10G	C197	2G	C411	6P	IC89	1P	Q59	3A	R103	9G	R238	3D				
C84	8E	C300	3L	C412	4S	IC90	3L	Q60	2A	R104	8F	R239	3C				
C85	9F	C301	2K	C413	1P	IC91	4K	Q62	3A	R105	8G	R240	3C				
C86	9H	C302	3J	C414	6J	IC92	2P	R1	6B	R106	8F	R241	3C				
C87	9G	C303	2J	C415	6L	IC93	3P	R2	7B	R108	10C	R242	3C				
C88	11C	C304	2K	C416	5L	IC94	3N	R3	7C	R109	10C	R244	2B				
C89	10D	C305	2K	C417	7S	IC95	3N	R4	6B	R110	10C	R245	3B				
C90	10F	C306	4J	C418	7P	IC96	9N	R5	6A	R111	10D	R246	3A				
C91	10D	C307	3J	C420	3L	IC97	10R	R6	6A	R112	10D	R247	3B				
C92	10E	C308	4K	C421	3P	IC98	3P	R7	6A	R113	10D	R248	3A				
C93	10D	C309	3R	C422	3P	IC99	3S	R8	5B	R114	10C	R249	2A				
C94	11D	C310	4K	C423	3N	IC102	1J	R9	5A	R115	11D	R252	3A				



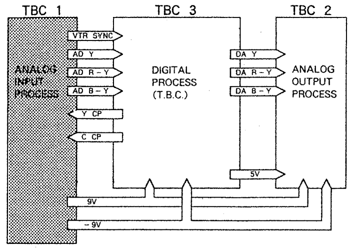
in

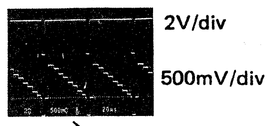

TBC BOARD
SCK1100-N0A
-P0A
CN1
D.GND
AUTO FREEZE
ON OFF
A B C D E F G H J K L M N P R S
1 2 3 4 5 6 7 8 9 10 11

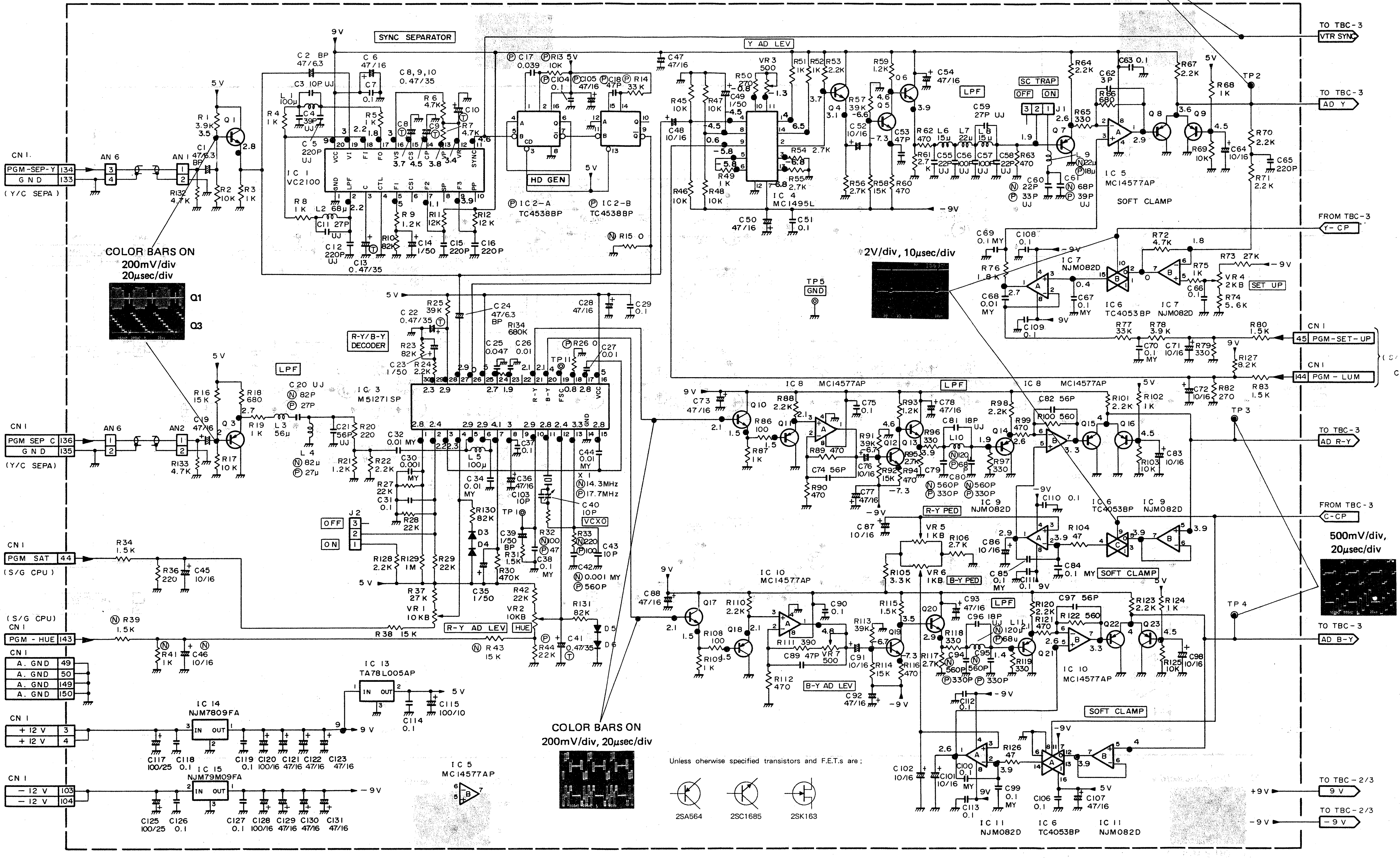
(T)

6.25 TBC BOARD SCHEMATIC DIAGRAM-1 1 3

- Circuit diagram of TBC board is divided into three sections.

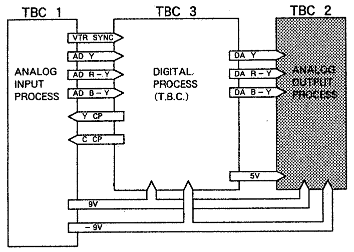

TBC 1
TBC 3
TBC 2
ANALOG INPUT PROCESS
VTR SYNC
AD Y
AD R-Y
AD B-Y
Y CP
C CP
DIGITAL PROCESS (T.B.C.)
DA Y
DA R-Y
DA B-Y
ANALOG OUTPUT PROCESS
5V
9V
-9V




SYNC SEPARATOR
Y AD LEV
IC 1 VC2100
IC 2-A TC4538BP
IC 2-B TC4538BP
HD GEN
IC 4 MC1495L
SC TRAP
LPF
IC 5 MC14577AP
SOFT CLAMP
TO TBC-3 VTR SYNC
TO TBC-3 AD Y
FROM TBC-3 Y-CP
TP2
IC 7 NJM082D
IC 6 TC4053BP
SET UP
CN I 45 PGM-SET-UP
CN I 144 PGM-LUM
(S/G CPU)
2V/div, 10μsec/div
TP5 GND
COLOR BARS ON 200mV/div 20μsec/div
Q1
Q3
CN I. PGM-SEP-Y 134 GND 133 (Y/C SEPA)
CN I PGM SEP C 136 GND 135 (Y/C SEPA)
AN 6
AN 1
AN2
R-Y/B-Y DECODER
IC 3 M51271SP
VCXO
X1 Ⓝ14.3MHz Ⓟ17.7MHz
J2 OFF ON
CN I PGM SAT 44 (S/G CPU)
(S/G CPU) CN I PGM-HUE 143
R-Y AD LEV
HUE
CN I A. GND 49 A. GND 50 A. GND 149 A. GND 150
CN I +12V 3 +12V 4
CN I -12V 103 -12V 104
IC 14 NJM7809FA
IC 15 NJM79M09FA
IC 13 TA78L005AP
IC 5 MC14577AP
COLOR BARS ON 200mV/div, 20μsec/div
IC 8 MC14577AP
R-Y PED
IC 9 NJM082D
IC 6 TC4053BP
FROM TBC-3 C-CP
500mV/div, 20μsec/div
TO TBC-3 AD R-Y
TP3
TP4
B-Y PED
SOFT CLAMP
IC 10 MC14577AP
B-Y AD LEV
TO TBC-3 AD B-Y
IC 11 NJM082D
IC 6 TC4053BP
IC 11 NJM082D
TO TBC-2/3 9V
TO TBC-2/3 -9V
Unless oherwise specified transistors and F.E.T.s are ;
2SA564
2SC1685
2SK163

6.26 TBC BOARD SCHEMATIC DIAGRAM-2 1 3

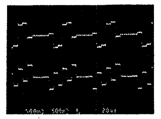
- Circuit diagram of TBC board is divided into three sections.



TBC 1
TBC 3
TBC 2
ANALOG INPUT PROCESS
DIGITAL PROCESS (T.B.C.)
ANALOG OUTPUT PROCESS
VTR SYNC
AD Y
AD R-Y
AD B-Y
Y CP
C CP
DA Y
DA R-Y
DA B-Y
5V
9V
-9V

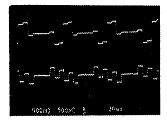
COLOR BARS ON
500mV/div, 20μsec/div

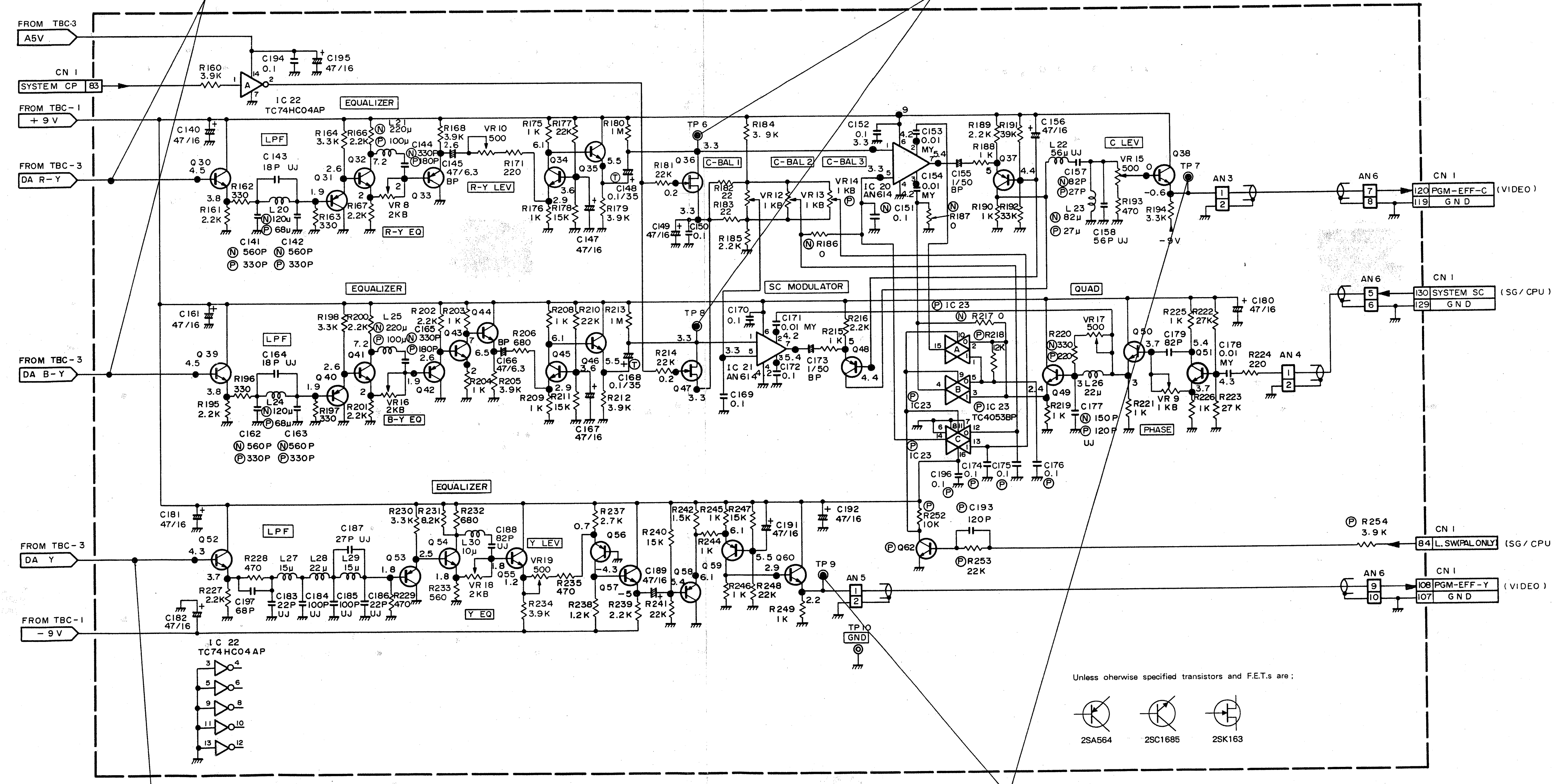
DA R-Y
DA B-Y



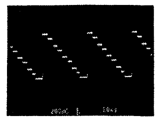
500mV/div, 20μsec/div

TP6
TP8





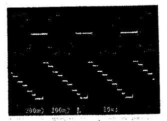
200mV/div, 20μsec/div



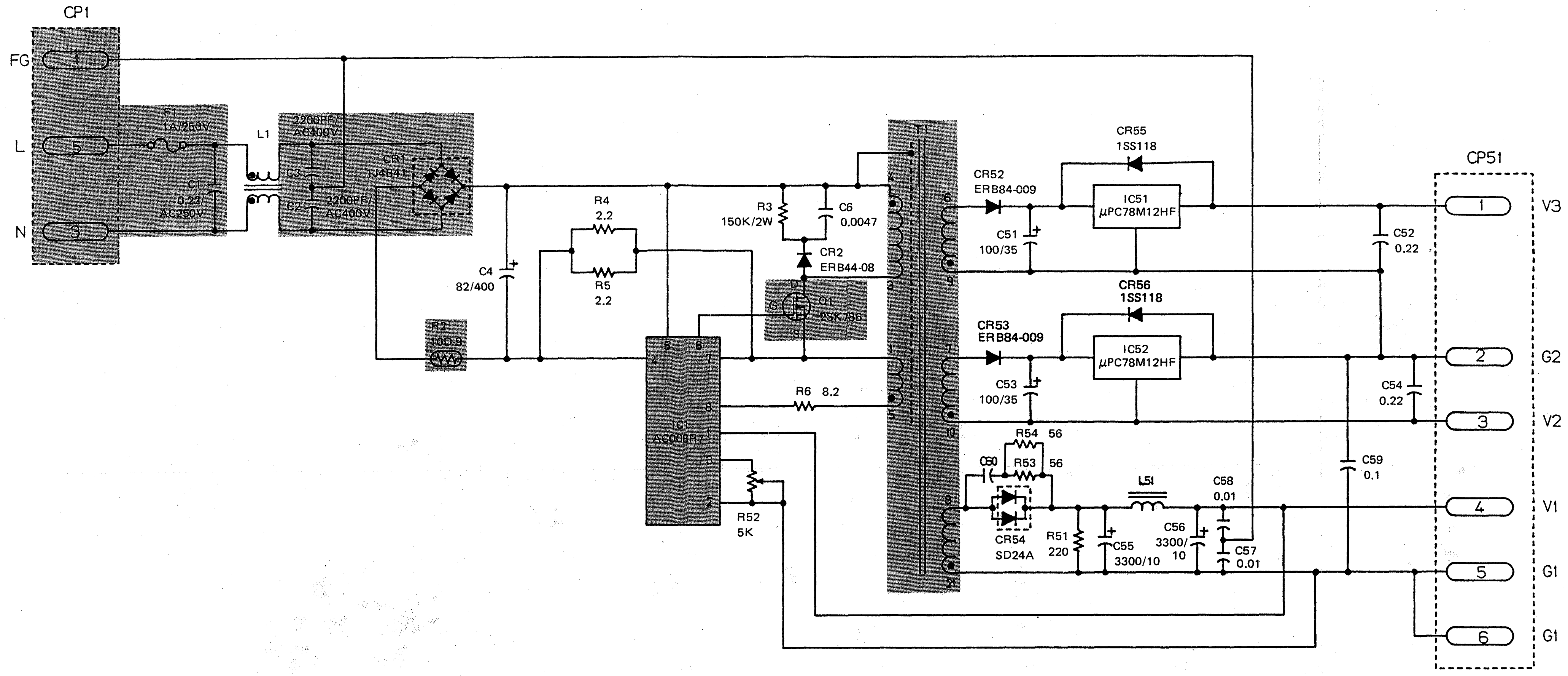
COLOR BARS ON

200mV/div, 20μsec/div

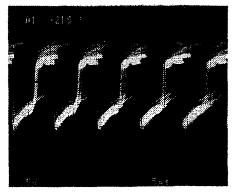
TP7
TP9



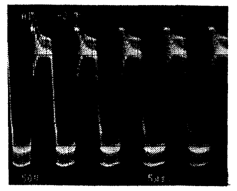
6.28 PS UNIT OF THE CONTROL UNIT 1 4

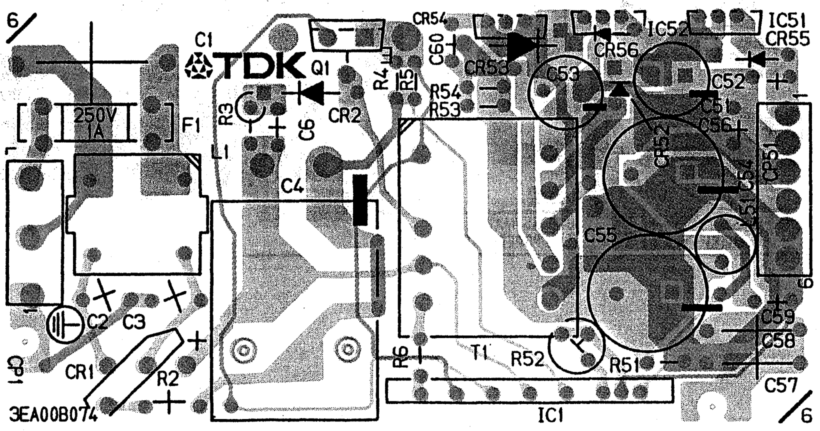

CP1
FG
L
N
1
5
3
F1
1A/250V
C1
0.22/
AC250V
L1
2200PF/
AC400V
C3
C2
2200PF/
AC400V
CR1
1J4B41
C4
82/400
R2
10D-9
R4
2.2
R5
2.2
R3
150K/2W
C6
0.0047
CR2
ERB44-08
Q1
2SK786
G
D
S
IC1
AC008R7
R6 8.2
R52
5K
T1
CR55
1SS118
CR52
ERB84-009
IC51
μPC78M12HF
C51
100/35
CR56
1SS118
CR53
ERB84-009
IC52
μPC78M12HF
C53
100/35
R54 56
R53 56
C60
CR54
SD24A
R51
220
C55
3300/10
L51
C56
3300/10
C58
0.01
C57
0.01
C52
0.22
C54
0.22
C59
0.1
CP51
V3
G2
V2
V1
G1
G1

IC1-6 pin
5V/div, 5μsec/div



Q1-D
50V/div, 5μsec/div





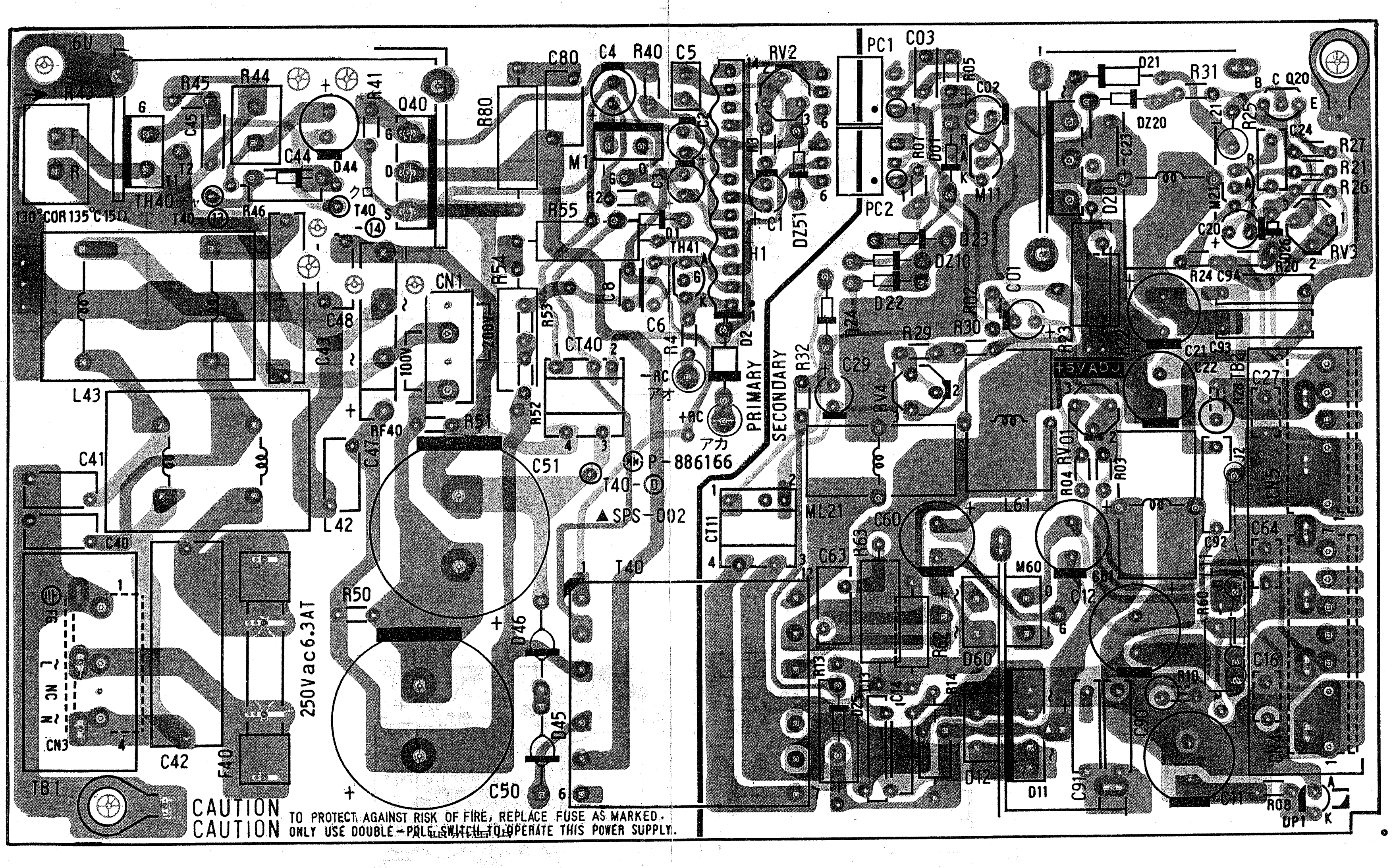
6.29 PS UNIT CIRCUIT BOARD OF THE MAIN UNIT

This diagram is of the PS unit whose main unit has a serial number falling under the following.

U version : ***50025 and after
EG version : ***50036 and after
EA version : ***50001 and after
EK version : ***50001 and after

PS units other than the above serial numbers of the main units are not subject to repair. When such PS units need to repair, replace them with following ones, which are the same in capacity and interchangeable in installation and connection.

U version : SCV1986-00N
EG, EA, EK versions: SCV1986-00P



R45
R44
R41
Q40
R80
C80
C4
R40
C5
RV2
PC1
C03
D21
R31
Q20
C45
C44
D44
TH40
T40
R46
M1
R55
R26
TH41
C1
DZ51
PC2
DZ20
C23
R27
R21
R26
D23
DZ10
D22
C01
R29
R30
R24
C94
RV3
CN1
C48
C43
L43
C41
C40
R54
R53
C8
C6
CT40
R4
R52
PRIMARY
SECONDARY
R32
C29
RV4
+5VADJ
C21
C93
C22
C27
+RC
アオ
アカ
RF40
R51
C51
P-886166
T40-⑩
▲SPS-002
T40
C47
L42
R50
250Vac6.3AT
F40
C42
CN3
TB1
D46
D45
C50
CT11
ML21
C60
R63
C63
M60
C12
C92
C64
RV01
R04
R03
R60
C16
D60
R13
C14
R12
D12
D11
C91
R10
C11
R08
DP1
CAUTION TO PROTECT AGAINST RISK OF FIRE, REPLACE FUSE AS MARKED.
CAUTION ONLY USE DOUBLE-POLE SWITCH TO OPERATE THIS POWER SUPPLY.

6-32

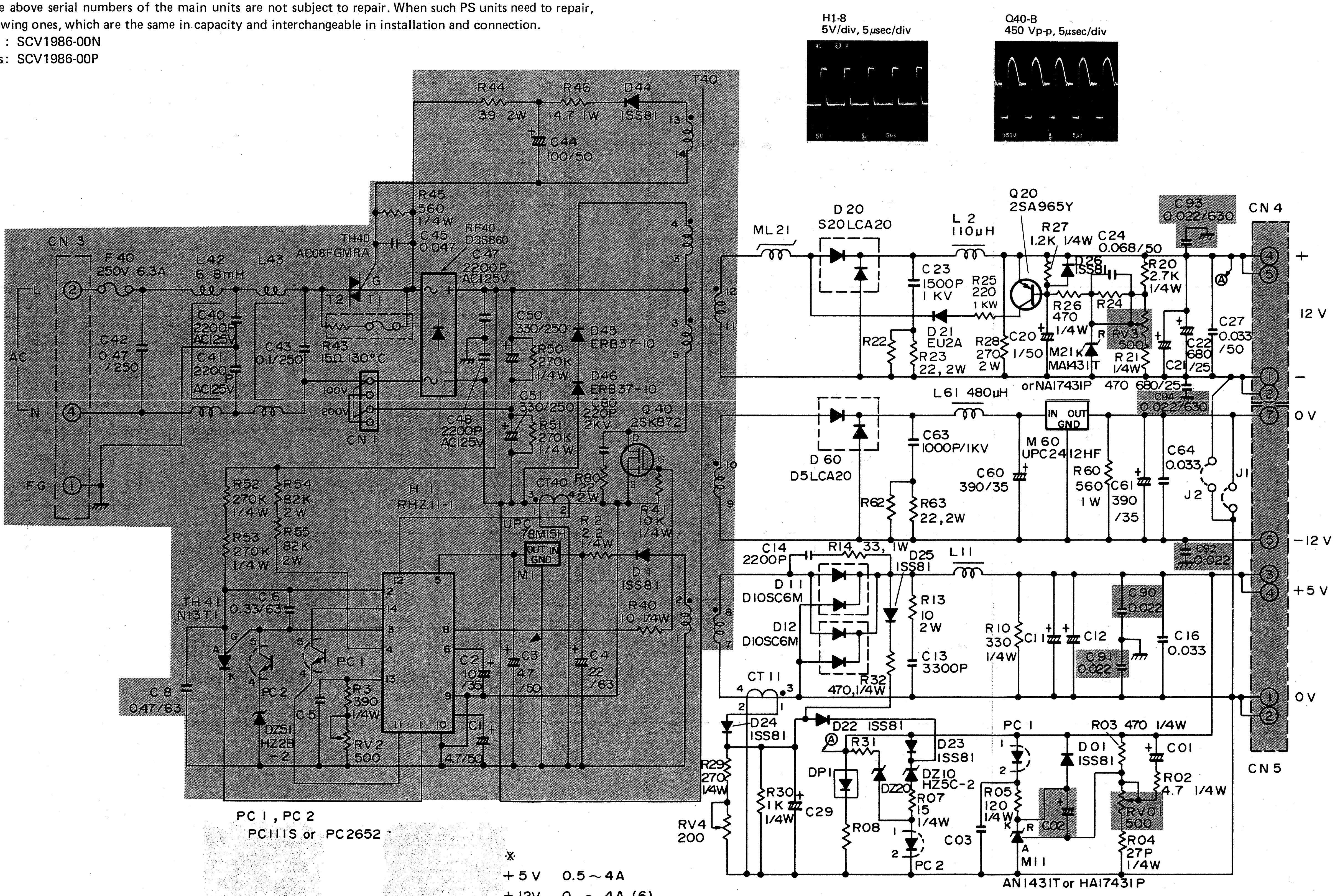
6.30 PS UNIT SCHEMATIC DIAGRAM OF THE MAIN UNIT 1 5

This diagram is of the PS unit whose main unit has a serial number falling under the following.

U version : ***50025 and after
EG version : ***50036 and after
EA version : ***50001 and after
EK version : ***50001 and after

PS units other than the above serial numbers of the main units are not subject to repair. When such PS units need to repair, replace them with following ones, which are the same in capacity and interchangeable in installation and connection.

U version : SCV1986-00N
EG, EA, EK versions: SCV1986-00P


H1-8
5V/div, 5μsec/div
Q40-B
450 Vp-p, 5μsec/div
CN 3
F 40
250V 6.3A
L42
6.8mH
L43
TH40
AC08FGMRA
AC
L
N
FG
C42
0.47
/250
C40
2200P
AC125V
C41
2200P
AC125V
C43
0.1/250
R43
15Ω 130°C
T2
T1
G
100V
200V
CN 1
R44
39 2W
R46
4.7 1W
D44
ISS81
T40
C44
100/50
R45
560
1/4W
C45
0.047
RF40
D3SB60
C47
2200P
AC125V
C48
2200P
AC125V
C50
330/250
R50
270K
1/4W
C51
330/250
R51
270K
1/4W
D45
ERB37-10
D46
ERB37-10
C80
220P
2KV
Q40
2SK872
CT40
R80
22
2W
R41
10K
1/4W
R2
2.2
1/4W
D1
ISS81
R40
10 1/4W
UPC
78M15H
OUT IN
GND
M1
H1
RHZ11-1
R52
270K
1/4W
R54
82K
2W
R53
270K
1/4W
R55
82K
2W
TH41
N13T1
C6
0.33/63
C8
0.47/63
PC1
PC2
DZ51
HZ2B
-2
C5
R3
390
1/4W
RV2
500
C2
10
/35
C3
47
/50
C4
22
/63
C1
4.7/50
ML21
D20
S20LCA20
L2
110μH
C23
1500P
1KV
R25
220
1KW
D21
EU2A
R22
R23
22, 2W
R28
270
2W
Q20
2SA965Y
R27
1.2K 1/4W
D26
ISS81
C24
0.068/50
R26
470
1/4W
R24
C20
1/50
M21
MA1431T
or NA1743IP
RV3
500
R21
1/4W
470
C22
680
/25
C21
680/25
R20
2.7K
1/4W
C27
0.033
/50
C93
0.022/630
CN4
+
12 V
−
0 V
L61 480μH
D60
D5LCA20
C63
1000P/1KV
R62
R63
22,2W
M60
UPC2412HF
IN OUT
GND
C60
390/35
R60
560
1W
C61
390
/35
C94
0.022/630
C64
0.033
J1
J2
−12 V
C92
0.022
C14
2200P
R14 33, 1W
D25
ISS81
L11
D11
D10SC6M
D12
D10SC6M
R13
10
2W
C13
3300P
R32
470,1/4W
R10
330
1/4W
C11
C12
C90
0.022
C91
0.022
C16
0.033
+5 V
0 V
CT11
D24
ISS81
D22 ISS81
R31
D23
ISS81
DP1
DZ20
DZ10
HZ5C-2
R07
15
1/4W
R08
R29
270
1/4W
RV4
200
R30
1K
1/4W
C29
PC2
PC 1
R05
120
1/4W
C03
D01
ISS81
R03 470 1/4W
C01
R02
4.7 1/4W
C02
RV01
500
R04
27P
1/4W
M11
AN1431T or HA17431P
CN5
Ⓐ

PC1, PC2
PC111S or PC2652

※
+5 V 0.5 ~ 4A
+12V 0 ~ 4A (6)
−12V 0 ~ 0.8A

6.31 PS UNIT SCHEMATIC DIAGRAM OF THE MAIN UNIT 1 6

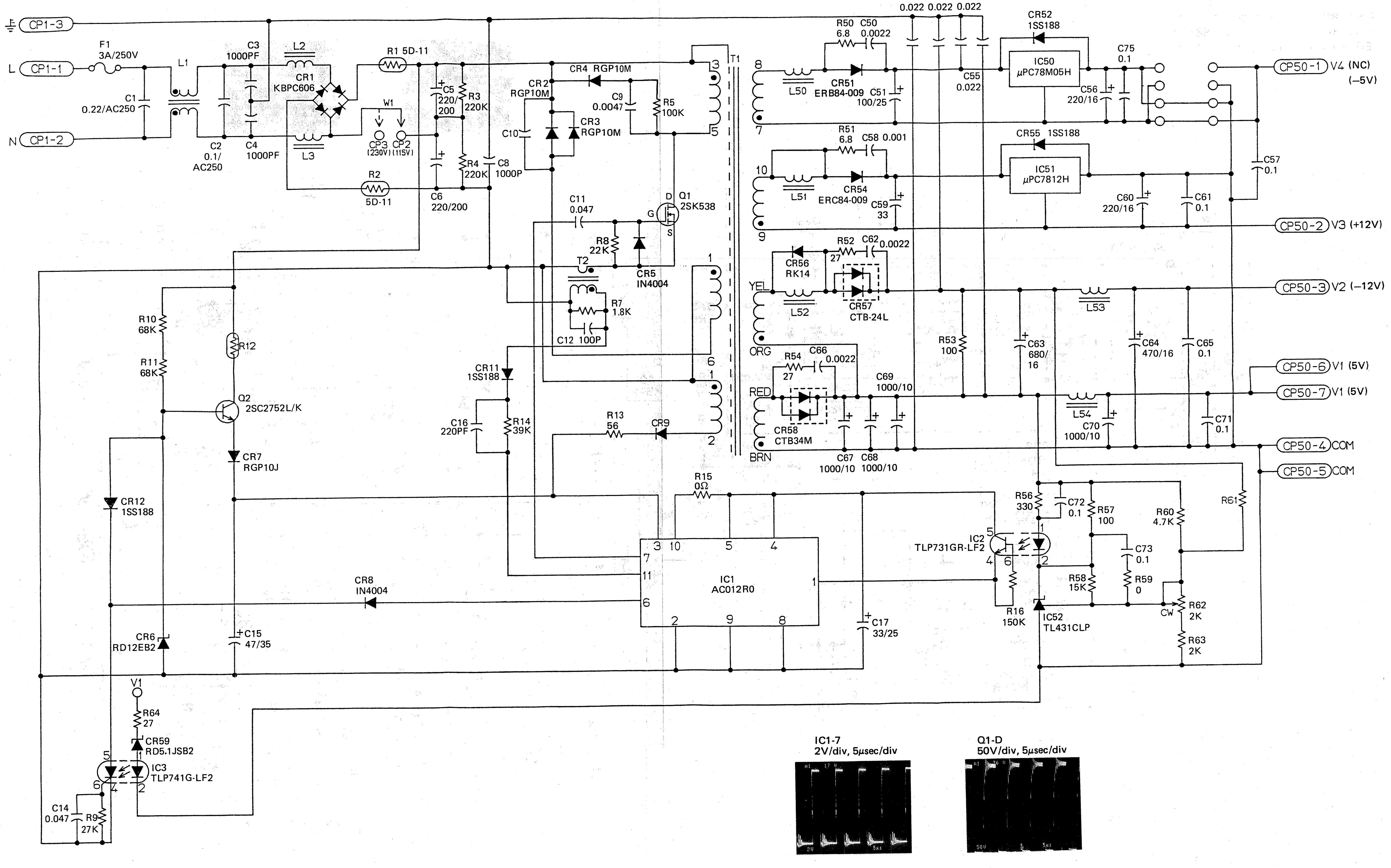
This diagram is of the PS unit whose main unit has a serial number falling under the following.

U version	:	***50024 and before
EG version	:	***50035 and before
EA version	:	Not affected
EK version	:	Not affected

Those PS units are not subject to repair. When such PS units need to repair, replace them with following ones, which are the same in capacity and interchangeable in installation and connection.

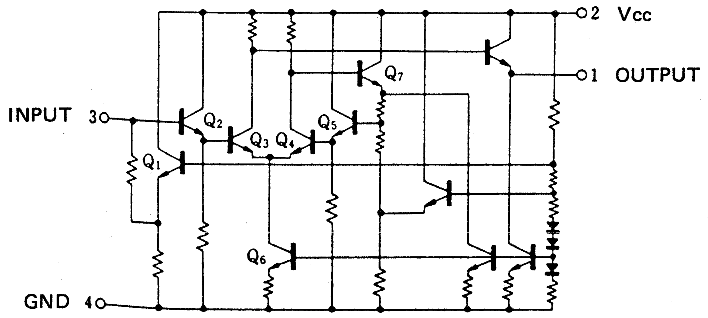
U version	:	SCV1986-00N
E version	:	SCV1986-00P

For circuit diagram and schematic diagram of the later PS unit, see sections 6.29 and 6.30.


CP1-3
L CP1-1
N CP1-2
F1 3A/250V
L1
C1 0.22/AC250
C2 0.1/ AC250
C3 1000PF
C4 1000PF
L2
L3
CR1 KBPC606
W1
CP3 (230V)
CP2 (115V)
R1 5D-11
R2 5D-11
C5 220/200
C6 220/200
R3 220K
R4 220K
C8 1000P
CR2 RGP10M
CR4 RGP10M
CR3 RGP10M
C9 0.0047
R5 100K
C10
C11 0.047
Q1 2SK538
D G S
R8 22K
CR5 IN4004
T2
R7 1.8K
C12 100P
T1
R10 68K
R11 68K
R12
Q2 2SC2752L/K
CR7 RGP10J
CR11 1SS188
C16 220PF
R14 39K
R13 56
CR9
R15 0Ω
CR12 1SS188
CR8 IN4004
IC1 AC012R0
C15 47/35
C17 33/25
CR6 RD12EB2
V1
R64 27
CR59 RD5.1JSB2
IC3 TLP741G-LF2
C14 0.047
R9 27K
C52 0.022 C53 0.022 C54 0.022
R50 6.8 C50 0.0022
CR52 1SS188
L50
CR51 ERB84-009
C51 100/25
C55 0.022
IC50 μPC78M05H
C75 0.1
C56 220/16
CP50-1 V4 (NC) (-5V)
R51 6.8 C58 0.001
CR55 1SS188
IC51 μPC7812H
L51
CR54 ERC84-009
C59 33
C60 220/16
C61 0.1
C57 0.1
CP50-2 V3 (+12V)
R52 27 C62 0.0022
CR56 RK14
CR57 CTB-24L
YEL
L52
L53
CP50-3 V2 (-12V)
R53 100
C63 680/16
C64 470/16
C65 0.1
ORG
R54 27 C66 0.0022
RED
C69 1000/10
CR58 CTB34M
BRN
C67 1000/10 C68 1000/10
L54
C70 1000/10
C71 0.1
CP50-6 V1 (5V)
CP50-7 V1 (5V)
CP50-4 COM
CP50-5 COM
R56 330
C72 0.1
R57 100
R60 4.7K
R61
IC2 TLP731GR-LF2
C73 0.1
R58 15K
R59 0
R16 150K
IC52 TL431CLP
R62 2K
CW
R63 2K
IC1-7 2V/div, 5μsec/div
Q1-D 50V/div, 5μsec/div

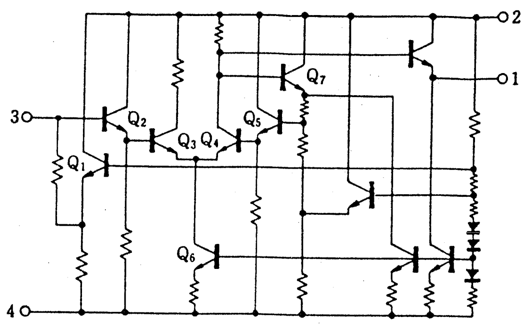
6.32 BLOCK DIAGRAMS OF PRINCIPLE ICs

AN607P [MATSUSHITA]
(Amp.)



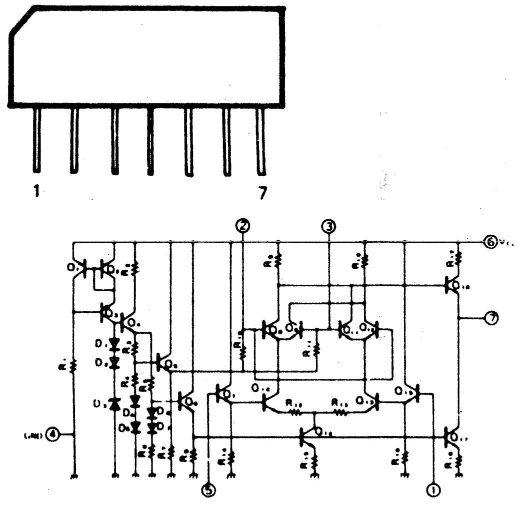
2 Vcc
1 OUTPUT
INPUT 3
GND 4
Q1
Q2
Q3
Q4
Q5
Q6
Q7

AN608P [MATSUSHITA]
(Amp.)

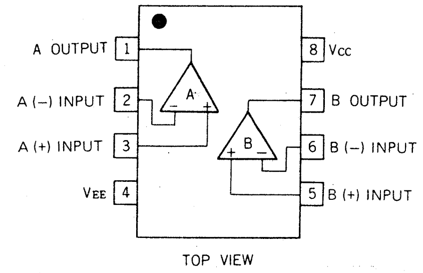


2
1
3
4
Q1
Q2
Q3
Q4
Q5
Q6
Q7

AN614 [MATSUSHITA]
(Balance Modulator)

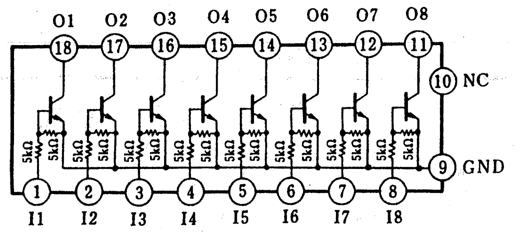


AN6914 [MATSUSHITA]
(Dual Comparator)



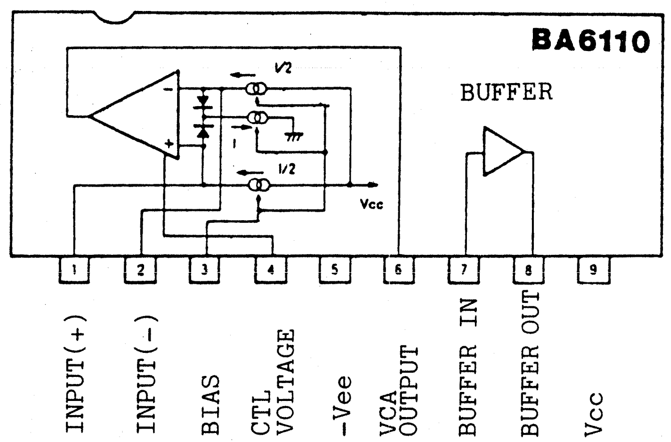
A OUTPUT 1
A (−) INPUT 2
A (+) INPUT 3
VEE 4
8 Vcc
7 B OUTPUT
6 B (−) INPUT
5 B (+) INPUT
A
B
TOP VIEW

AN90B22 [MATSUSHITA]
(Transistor Array)



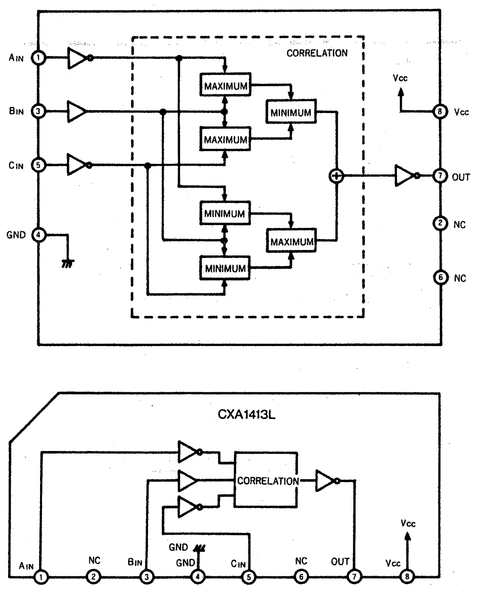
O1 O2 O3 O4 O5 O6 O7 O8
18 17 16 15 14 13 12 11
10 NC
9 GND
1 2 3 4 5 6 7 8
I1 I2 I3 I4 I5 I6 I7 I8
5kΩ

BA6110 [ROHM]
(Voltage Control OP-Amp)



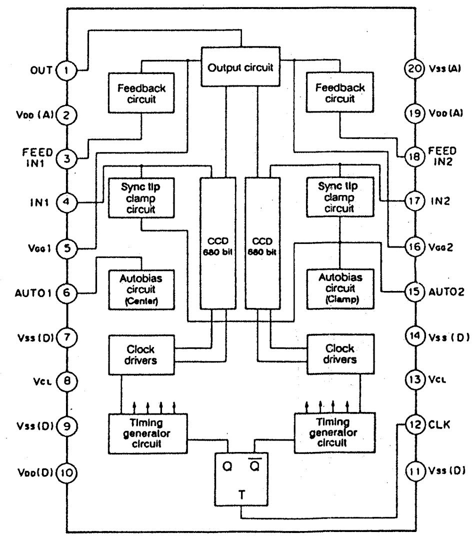
BA6110
BUFFER
I/2
I/2
I
Vcc
1 2 3 4 5 6 7 8 9
INPUT (+)
INPUT (−)
BIAS
CTL VOLTAGE
-Vee
VCA OUTPUT
BUFFER IN
BUFFER OUT
Vcc

CXA1413L [SONY]
(Vertical Correlation Circuit)



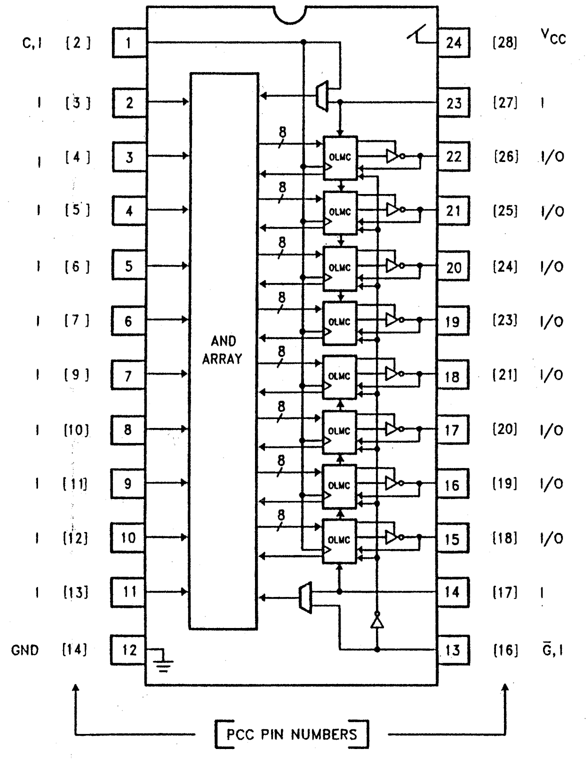
CORRELATION
AIN 1
BIN 3
CIN 5
GND 4
Vcc 8
OUT 7
NC 2
NC 6
MAXIMUM
MINIMUM
MAXIMUM
MINIMUM
MAXIMUM
MINIMUM
Vcc
CXA1413L
CORRELATION
AIN NC BIN GND CIN NC OUT Vcc

CXL1009P [SONY]
(CCD Signal Processor for TBC)



OUT 1
VDD (A) 2
FEED IN1 3
IN1 4
VSS1 5
AUTO1 6
VSS (D) 7
VCL 8
VSS (D) 9
VDD (D) 10
20 VSS (A)
19 VDD (A)
18 FEED IN2
17 IN2
16 VSS2
15 AUTO2
14 VSS (D)
13 VCL
12 CLK
11 VSS (D)
Output circuit
Feedback circuit
Feedback circuit
Sync tip clamp circuit
Sync tip clamp circuit
CCD 680 bit
CCD 680 bit
Autobias circuit (Center)
Autobias circuit (Clamp)
Clock drivers
Clock drivers
Timing generator circuit
Timing generator circuit
Q Q̄
T

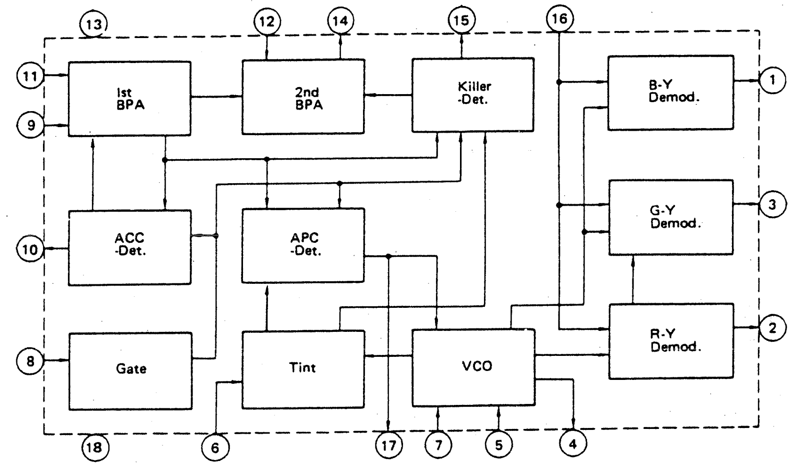
GAL20V8-25Q-□□ [NATIONAL SEMICONDUCTOR]
(Generic Aray Logic)



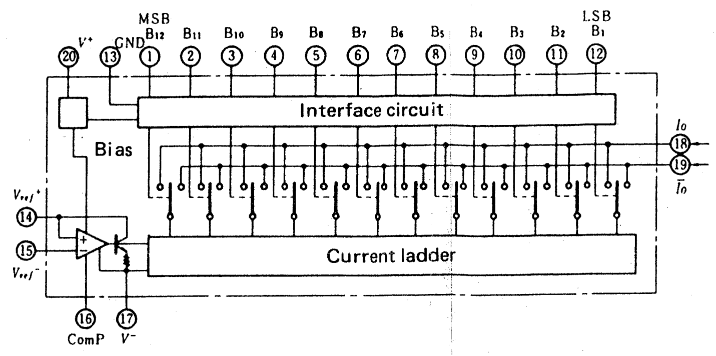
C,I [2] 1
I [3] 2
I [4] 3
I [5] 4
I [6] 5
I [7] 6
I [9] 7
I [10] 8
I [11] 9
I [12] 10
I [13] 11
GND [14] 12
24 [28] Vcc
23 [27] I
22 [26] I/O
21 [25] I/O
20 [24] I/O
19 [23] I/O
18 [21] I/O
17 [20] I/O
16 [19] I/O
15 [18] I/O
14 [17] I
13 [16] Ḡ, I
AND ARRAY
OLMC
8
PCC PIN NUMBERS

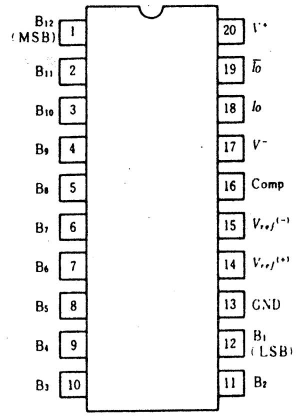
FIGURE 1

HA11247 [HITACHI]
(NTSC Color TV Chroma Processor)


1st BPA
2nd BPA
Killer -Det.
B-Y Demod.
ACC -Det.
APC -Det.
G-Y Demod.
R-Y Demod.
Gate
Tint
VCO
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
⑭
⑮
⑯
⑰
⑱

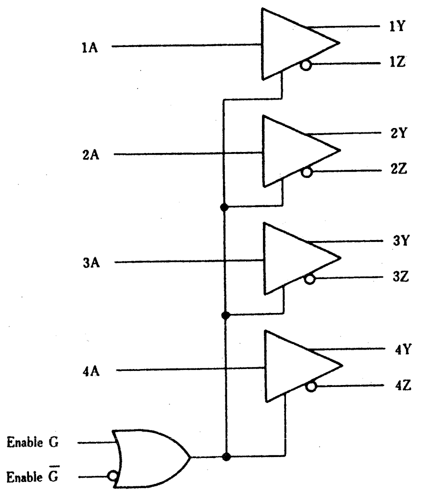
HA17012PC [HITACHI]
(12-bit Maltiplying D/A Converter)

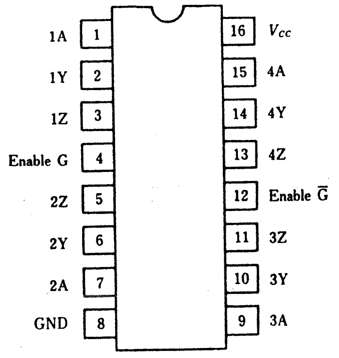

MSB
V⁺
GND
B₁₂
B₁₁
B₁₀
B₉
B₈
B₇
B₆
B₅
B₄
B₃
B₂
LSB
B₁
Interface circuit
Bias
Iₒ
Īₒ
Vref⁺
Vref⁻
Current ladder
ComP
V⁻


B₁₂ (MSB) 1
B₁₁ 2
B₁₀ 3
B₉ 4
B₈ 5
B₇ 6
B₆ 7
B₅ 8
B₄ 9
B₃ 10
11 B₂
12 B₁ (LSB)
13 GND
14 Vref(+)
15 Vref(−)
16 Comp
17 V⁻
18 Iₒ
19 Īₒ
20 V⁺

Top View

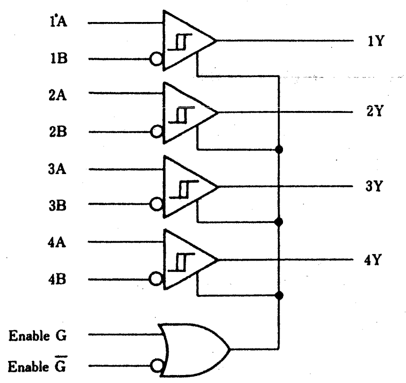
HD26LS31P [HITACHI]
(Quad Differential Line Drivers)

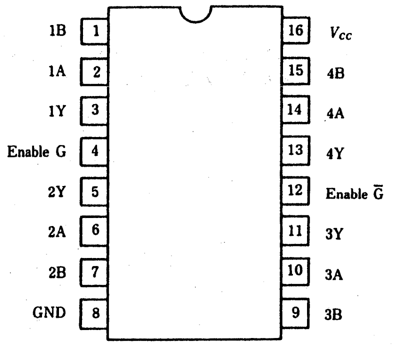

1A
1Y
1Z
2A
2Y
2Z
3A
3Y
3Z
4A
4Y
4Z
Enable G
Enable Ḡ


1A 1
1Y 2
1Z 3
Enable G 4
2Z 5
2Y 6
2A 7
GND 8
9 3A
10 3Y
11 3Z
12 Enable Ḡ
13 4Z
14 4Y
15 4A
16 Vcc

Top View

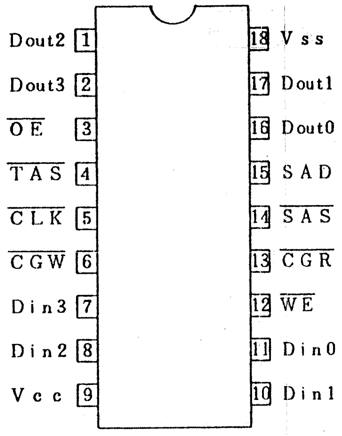
HD26LS32P [HITACHI]
(Quad Differential Line Receivers)


1A
1B
2A
2B
3A
3B
4A
4B
1Y
2Y
3Y
4Y
Enable G
Enable Ḡ


1B 1
1A 2
1Y 3
Enable G 4
2Y 5
2A 6
2B 7
GND 8
9 3B
10 3A
11 3Y
12 Enable Ḡ
13 4Y
14 4A
15 4B
16 Vcc

Top View

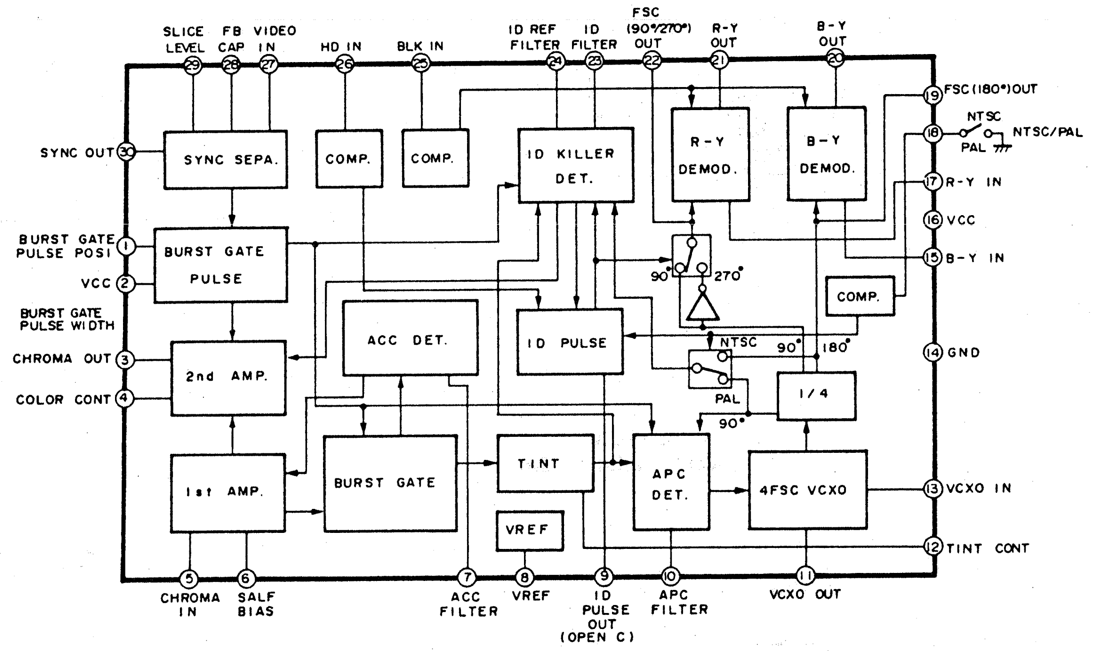
HM53051P-60 [HITACHI]
(Frame Memory)


Dout2 1
Dout3 2
OE 3
TAS 4
CLK 5
CGW 6
Din3 7
Din2 8
Vcc 9
10 Din1
11 Din0
12 WE
13 CGR
14 SAS
15 SAD
16 Dout0
17 Dout1
18 Vss

Top View

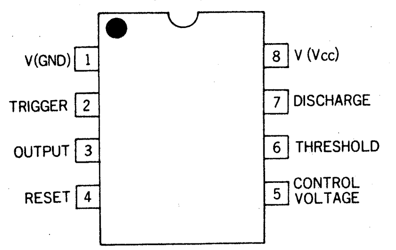
Din 0 – 3	: Data Input
Dout 0 – 3	: Data Output
OE	: Output Enable
TAS	: Transfer Address Strobe
CLK	: System clock
CGW	: Clock Gate (Write)
GGR	: Clock Gate (Read)
SAD	: Serial Address
SAS	: Serial Address Strobe
WE	: Write Enable

M51271SP [MITSUBISHI]
(Component Decorder)


SLICE LEVEL
FB CAP
VIDEO IN
HD IN
BLK IN
ID REF FILTER
ID FILTER
FSC (90°/270°) OUT
R-Y OUT
B-Y OUT
FSC (180°) OUT
NTSC
PAL
NTSC/PAL
R-Y IN
VCC
B-Y IN
GND
VCXO IN
TINT CONT
SYNC OUT
BURST GATE PULSE POSI
VCC
BURST GATE PULSE WIDTH
CHROMA OUT
COLOR CONT
SYNC SEPA.
COMP.
COMP.
ID KILLER DET.
R-Y DEMOD.
B-Y DEMOD.
BURST GATE PULSE
90°
270°
COMP.
ACC DET.
ID PULSE
NTSC
90°
180°
PAL
1/4
2nd AMP.
90°
1st AMP.
BURST GATE
TINT
APC DET.
4FSC VCXO
VREF
CHROMA IN
SALF BIAS
ACC FILTER
VREF
ID PULSE OUT (OPEN C)
APC FILTER
VCXO OUT

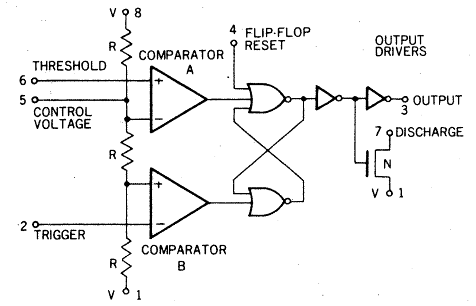
ICM7555IPA [INTERSIL] (Timer)

8-PIN DIP


V(GND) 1
TRIGGER 2
OUTPUT 3
RESET 4
8 V (Vcc)
7 DISCHARGE
6 THRESHOLD
5 CONTROL VOLTAGE

TOP VIEW

Block Diagram


V 8
R
COMPARATOR A
4 FLIP-FLOP RESET
OUTPUT DRIVERS
THRESHOLD
6
5
CONTROL VOLTAGE
OUTPUT 3
7 DISCHARGE
N
V 1
R
2 TRIGGER
COMPARATOR B
R
V 1

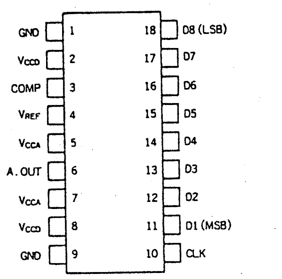
This block diagram reduces the circuitry down to its simplest equivalent components.

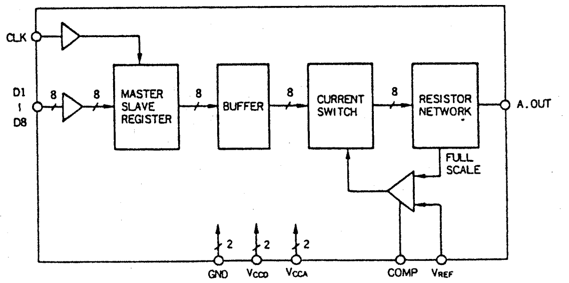
TRUTH TABLE

THRESHOLD VOLTAGE	TRIGGER VOLTAGE	RESET	OUTPUT	DISCHARGE SWITCH
DONT' CARE	DON'T CARE	LOW	LOW	ON
$>\frac{2}{3}(V^+-V^-)$	$>\frac{2}{3}(V^+-V^-)$	HIGH	LOW	ON
$\frac{1}{3}<V_{TH}<\frac{2}{3}$	$\frac{1}{3}<V_{TH}<\frac{2}{3}$	HIGH	?	?
$<\frac{1}{3}(V^+-V^-)$	$<\frac{1}{3}(V^+-V^-)$	HIGH	HIGH	OFF

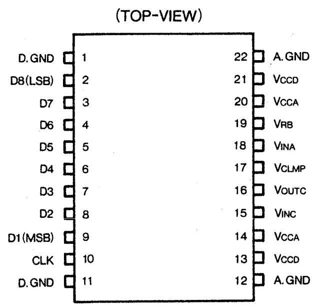
MB40778P-G [FUJITSU]
(8 bit Video D/A Convertor)

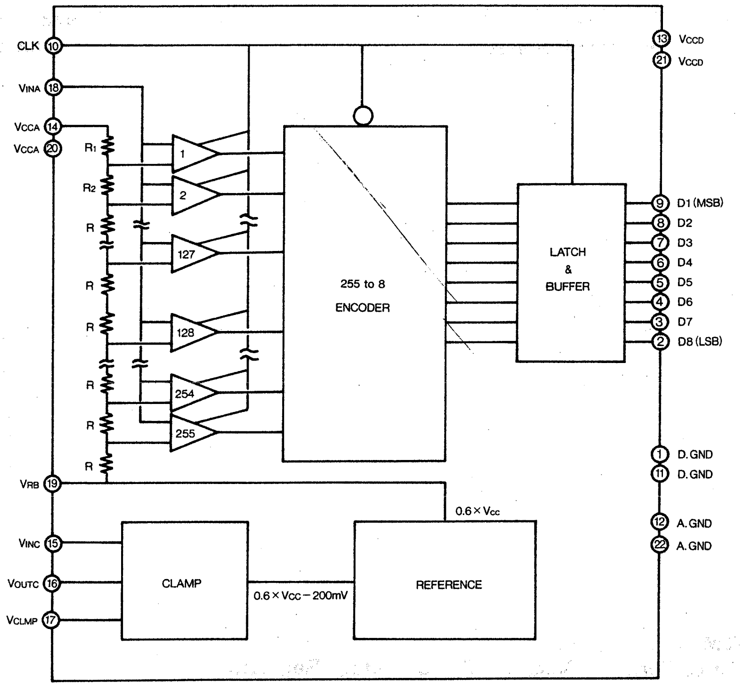
(TOP VIEW)


GND 1
VCCD 2
COMP 3
VREF 4
VCCA 5
A.OUT 6
VCCA 7
VCCD 8
GND 9
10 CLK
11 D1 (MSB)
12 D2
13 D3
14 D4
15 D5
16 D6
17 D7
18 D8 (LSB)

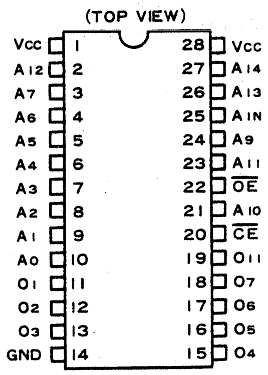

CLK
D1
D8
8
MASTER SLAVE REGISTER
BUFFER
CURRENT SWITCH
RESISTOR NETWORK
A.OUT
FULL SCALE
2
GND
VCCD
VCCA
COMP
VREF

MB40568P-G-SK [FUJITSU]
(8-bit A/D Converter)

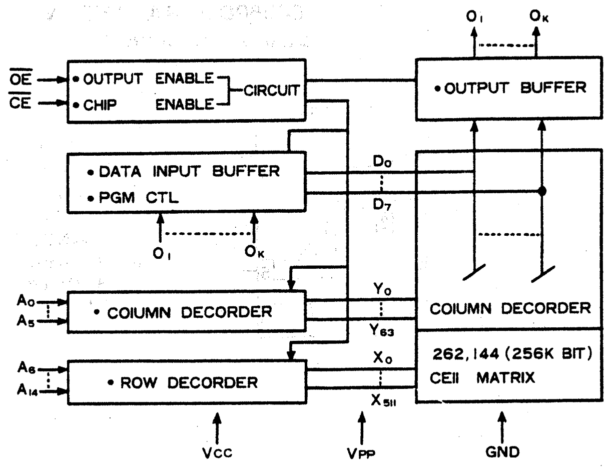

(TOP-VIEW)
D.GND 1
D8(LSB) 2
D7 3
D6 4
D5 5
D4 6
D3 7
D2 8
D1(MSB) 9
CLK 10
D.GND 11
22 A.GND
21 VCCD
20 VCCA
19 VRB
18 VINA
17 VCLMP
16 VOUTC
15 VINC
14 VCCA
13 VCCD
12 A.GND


CLK 10
VINA 18
VCCA 14
VCCA 20
R1
R2
R
1
2
127
128
254
255
255 to 8
ENCODER
LATCH
&
BUFFER
13 VCCD
21 VCCD
9 D1 (MSB)
8 D2
7 D3
6 D4
5 D5
4 D6
3 D7
2 D8 (LSB)
1 D.GND
11 D.GND
12 A.GND
22 A.GND
VRB 19
0.6 × Vcc
VINC 15
VOUTC 16
VCLMP 17
CLAMP
0.6 × Vcc − 200mV
REFERENCE

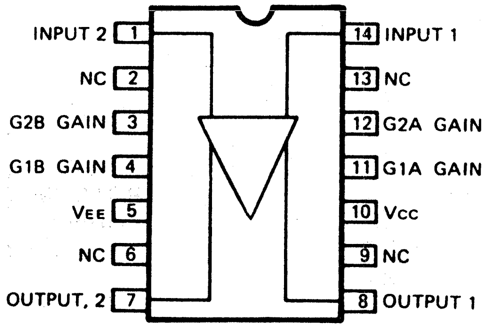
(PLSC****)
MN27C256-15FA [MATSUSHITA] (PROM)


(TOP VIEW)
Vcc 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
O1 11
O2 12
O3 13
GND 14
28 Vcc
27 A14
26 A13
25 AIN
24 A9
23 A11
22 OE
21 A10
20 CE
19 O11
18 O7
17 O6
16 O5
15 O4

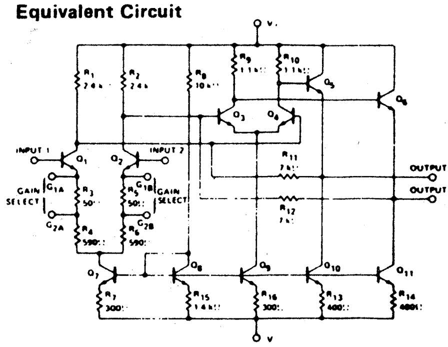
TERMINAL	NAME
Ȧ11~A14	ADDRESS INPUT
O1~O8	DATA OUTPUT
$\overline{CE}$	CHIP ENABLE
$\overline{OE}$	OUTPUT ENABLE
VPP	PROGARAM BIAS
Vcc	POWER SUPPLY
GND	GND


OE
CE
• OUTPUT ENABLE
• CHIP ENABLE
CIRCUIT
O1
OK
• OUTPUT BUFFER
• DATA INPUT BUFFER
• PGM CTL
D0
D7
O1
OK
A0
A5
• COIUMN DECORDER
Y0
Y63
COIUMN DECORDER
A6
A14
• ROW DECORDER
X0
X511
262,144 (256K BIT)
CEII MATRIX
Vcc
VPP
GND

MC1733CP [MOTOROLA]
(Differential Video Wideband Amplifier)

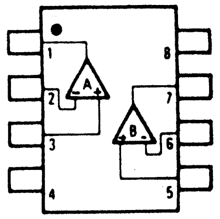

INPUT 2 1
NC 2
G2B GAIN 3
G1B GAIN 4
VEE 5
NC 6
OUTPUT, 2 7
14 INPUT 1
13 NC
12 G2A GAIN
11 G1A GAIN
10 Vcc
9 NC
8 OUTPUT 1

Equivalent Circuit


V+
R1 2.4k
R2 2.4k
R8 10k
R9 1.1k
R10 1.1k
Q5
Q6
Q3
Q4
INPUT 1
INPUT 2
Q1
Q2
GAIN SELECT
G1A
G2A
R3 50
R4 590
G1B
G2B
R5 50
R6 590
GAIN SELECT
R11 7k
R12 7k
OUTPUT 1
OUTPUT 2
Q7
Q8
Q9
Q10
Q11
R7 300
R15 1.4k
R16 300
R13 400
R14 400
V−

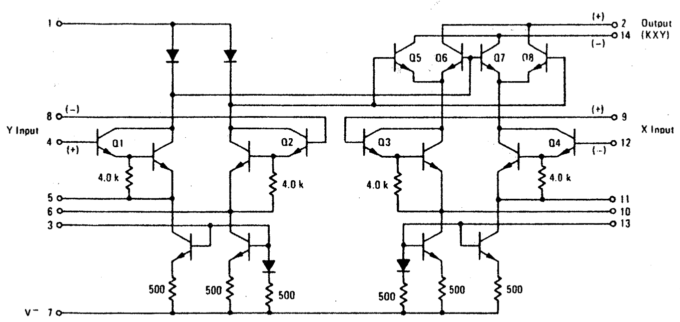
MC14577AP [MOTOROLA]
(Dual OP. Amplifire)

(Top View)

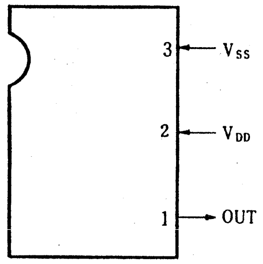

1
2
3
4
5
6
7
8
A
B

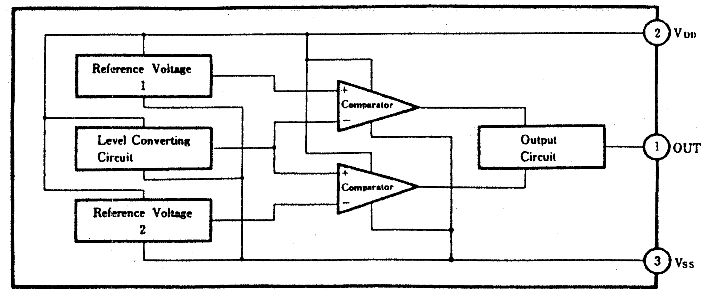
Pin
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. GROUND
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

MC1495L [MOTOROLA]
(Linerar Four-Quadrant Multiplier)

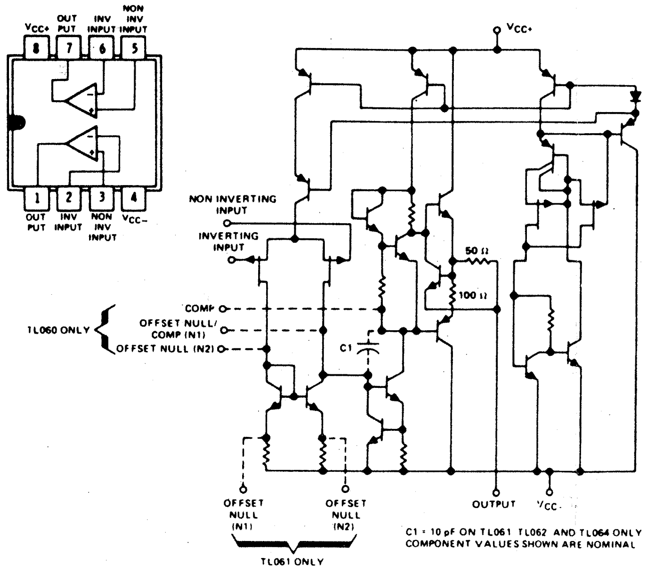

1
(+) 2 Output
(−) 14 (KXY)
Q5 Q6 Q7 Q8
8 (−)
Y Input
4 (+)
Q1
Q2
Q3
Q4
(+) 9
X Input
12 (−)
4.0 k
5
6
3
11
10
13
500
V− 7

MN1280(P.Q) [MATSUSHITA]
(Voltage Detecter)


3 VSS
2 VDD
1 OUT


2 VDD
Reference Voltage 1
Comparator
Level Converting Circuit
Output Circuit
1 OUT
Comparator
Reference Voltage 2
3 VSS

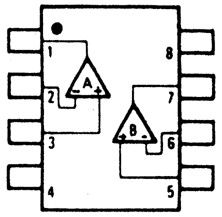
NJM082D [JRC]
(Dual Op Amp)


VCC+
OUT PUT
INV INPUT
NON INV INPUT
8 7 6 5
1 2 3 4
OUT PUT
INV INPUT
NON INV INPUT
VCC−
VCC+
NON INVERTING INPUT
INVERTING INPUT
TL060 ONLY
COMP
OFFSET NULL/ COMP (N1)
OFFSET NULL (N2)
C1
50 Ω
100 Ω
OFFSET NULL (N1)
OFFSET NULL (N2)
TL061 ONLY
OUTPUT
VCC−

C1 = 10 pF ON TL061 TL062 AND TL064 ONLY
COMPONENT VALUES SHOWN ARE NOMINAL

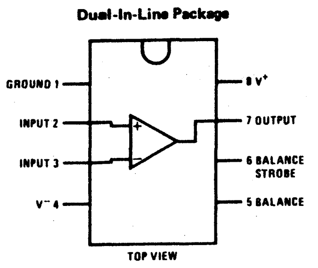
NJM2903D [JRC]
(Dual OP. Amplifire)

(Top View)

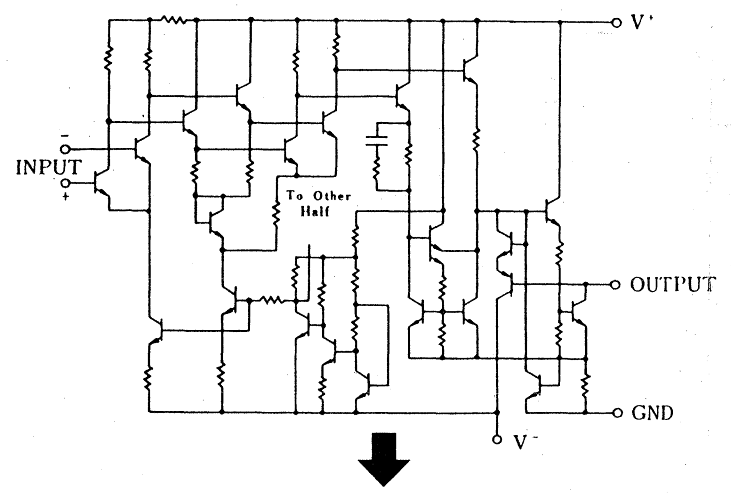

1
2
3
4
5
6
7
8
A
B

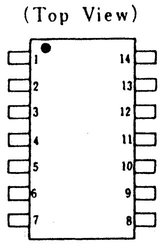
Pin
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. GROUND
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

NJM311D [JRC]
(Voltge Comparator)


Dual-In-Line Package
GROUND 1
INPUT 2
INPUT 3
V⁻ 4
8 V⁺
7 OUTPUT
6 BALANCE STROBE
5 BALANCE
+
−
TOP VIEW

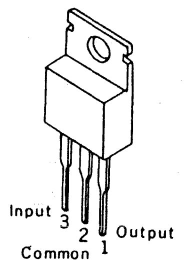
NJM319D [JRC]
(Voltage Comparator)


V⁺
INPUT
−
+
To Other Half
OUTPUT
GND
V⁻

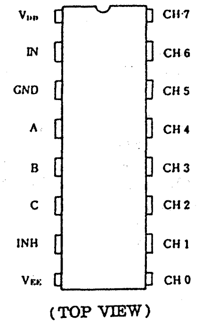

(Top View)
1
2
3
4
5
6
7
8
9
10
11
12
13
14

1	NC
2	NC
3 (2)	GND 1
4 (3)	+INPUT
5 (4)	−INPUT
6 (5)	V⁻
7 (6)	OUTPUT 2
8 (7)	GND 2
9 (8)	+INPUT 2
10(9)	−INPUT 2
11(10)	V⁺
12(1)	OUTPUT 1
13	NC
14	NC

NJM78M05FA [JRC]
(3-Terminal Positive Fixed Voltage Regulator)

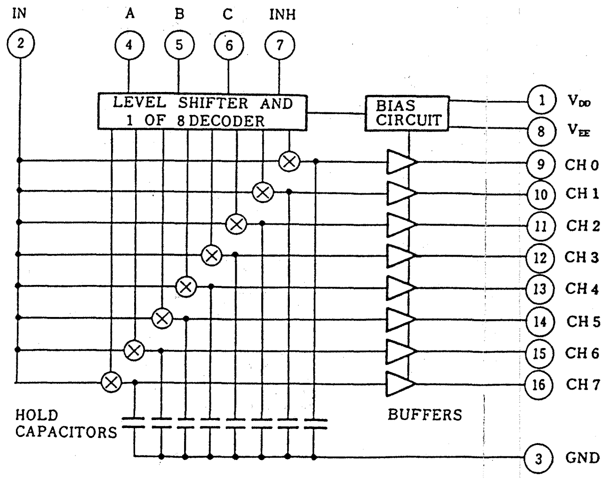

Input 3
2 Output
Common 1

NJU7304D [JRC]
(Analog channel selecter)

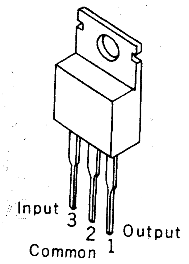

V_DD
IN
GND
A
B
C
INH
V_EE
CH 7
CH 6
CH 5
CH 4
CH 3
CH 2
CH 1
CH 0
(TOP VIEW)

CONTROL INPUT				ON SWITCH
INH	A	B	C	
0	0	0	0	CH 0
0	1	0	0	CH 1
0	0	1	0	CH 2
0	1	1	0	CH 3
0	0	0	1	CH 4
0	1	0	1	CH 5
0	0	1	1	CH 6
0	1	1	1	CH 7
0	×	×	×	−

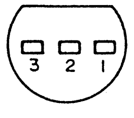
× Don't Care


IN
A
B
C
INH
②
④
⑤
⑥
⑦
LEVEL SHIFTER AND 1 OF 8 DECODER
BIAS CIRCUIT
① V_DD
⑧ V_EE
⑨ CH 0
⑩ CH 1
⑪ CH 2
⑫ CH 3
⑬ CH 4
⑭ CH 5
⑮ CH 6
⑯ CH 7
HOLD CAPACITORS
BUFFERS
③ GND

NJM7809FA [JRC]
(Voltage Regulator)


Input 3
2 Output
Common 1

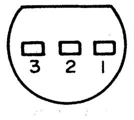
NJM78L06A [JRC]
(3-Terminal Positive Fixed Voltage Regulator)



1. INPUT
2. OUTPUT
3. GND

(Bottom View)

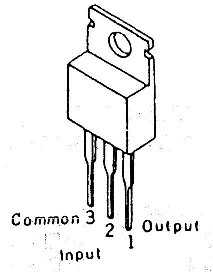
NJM79L06A [JRC]
(Three Terminal Negative Fixed Voltage Regulator)



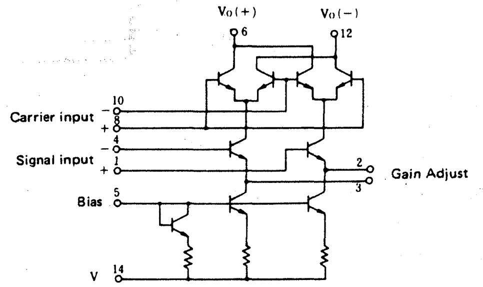
1. INPUT
2. OUTPUT (−5 V)
3. GND

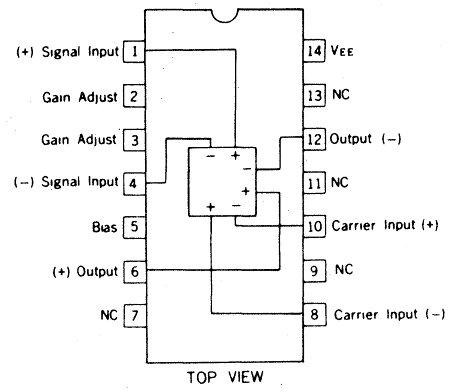
(Bottom View)

NJM79M09FA [JRC]
(Voltage Regulator)

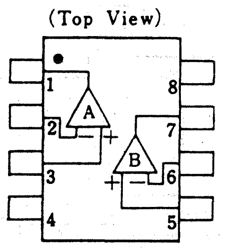

Common 3
2 Output
Input 1

RC1496M [RAYTHEON]
(Balanced Modulator)


Vo(+)
6
Vo(−)
12
Carrier input
10
−
8
+
Signal input
4
−
1
+
Bias
5
V
14
2
3
Gain Adjust

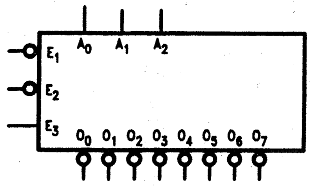

(+) Signal Input 1
Gain Adjust 2
Gain Adjust 3
(−) Signal Input 4
Bias 5
(+) Output 6
NC 7
14 Vᴇᴇ
13 NC
12 Output (−)
11 NC
10 Carrier Input (+)
9 NC
8 Carrier Input (−)
TOP VIEW

RC4558DD [RAYTHEON]
RC4560DD [RAYTHEON]
(Dual OP. Amplifire)


(Top View)
1
2
3
4
5
6
7
8
A
B
+
−

Pin
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

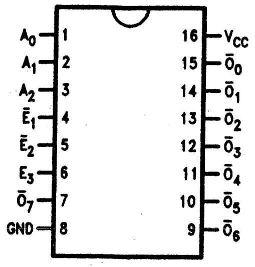
SN74HC138N [TEXAS]
(3 to 8 Line Driver)


$\bar{E}_1$
$\bar{E}_2$
E_3
A_0
A_1
A_2
O_0 O_1 O_2 O_3 O_4 O_5 O_6 O_7

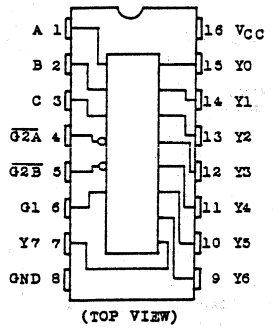
Inputs						Outputs							
$\bar{E}_1$	$\bar{E}_2$	E_3	A_0	A_1	A_2	$\bar{O}_0$	$\bar{O}_1$	$\bar{O}_2$	$\bar{O}_3$	$\bar{O}_4$	$\bar{O}_5$	$\bar{O}_6$	$\bar{O}_7$
H	X	X	X	X	X	H	H	H	H	H	H	H	H
X	H	X	X	X	X	H	H	H	H	H	H	H	H
X	X	L	X	X	X	H	H	H	H	H	H	H	H
L	L	H	L	L	L	L	H	H	H	H	H	H	H
L	L	H	H	L	L	H	L	H	H	H	H	H	H
L	L	H	L	H	L	H	H	L	H	H	H	H	H
L	L	H	H	H	L	H	H	H	L	H	H	H	H
L	L	H	L	L	H	H	H	H	H	L	H	H	H
L	L	H	H	L	H	H	H	H	H	H	L	H	H
L	L	H	L	H	H	H	H	H	H	H	H	L	H
L	L	H	H	H	H	H	H	H	H	H	H	H	L

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

Pin Assignment for DIP, SOIC and Flatpak


A_0 1
A_1 2
A_2 3
$\bar{E}_1$ 4
$\bar{E}_2$ 5
E_3 6
$\bar{O}_7$ 7
GND 8
16 V_{CC}
15 $\bar{O}_0$
14 $\bar{O}_1$
13 $\bar{O}_2$
12 $\bar{O}_3$
11 $\bar{O}_4$
10 $\bar{O}_5$
9 $\bar{O}_6$

SN74HC238N [TEXAS]
(3-T0-8 Line Decoder)

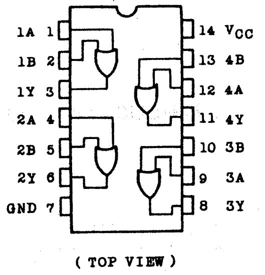

A 1
B 2
C 3
$\overline{G2A}$ 4
$\overline{G2B}$ 5
G1 6
Y7 7
GND 8
16 V_{CC}
15 Y0
14 Y1
13 Y2
12 Y3
11 Y4
10 Y5
9 Y6
(TOP VIEW)

True Table

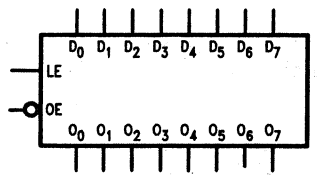
INPUTS						OUTPUTS								SELECTED OUTPUT
ENABLE			SELECT			Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	
$\overline{G2B}$	$\overline{G2A}$	G1	C	B	A									
X	X	L	X	X	X	L	L	L	L	L	L	L	L	NONE
X	H	X	X	X	X	L	L	L	L	L	L	L	L	NONE
H	X	X	X	X	X	L	L	L	L	L	L	L	L	NONE
L	L	H	L	L	L	H	L	L	L	L	L	L	L	Y0
L	L	H	L	L	H	L	H	L	L	L	L	L	L	Y1
L	L	H	L	H	L	L	L	H	L	L	L	L	L	Y2
L	L	H	L	H	H	L	L	L	H	L	L	L	L	Y3
L	L	H	H	L	L	L	L	L	L	H	L	L	L	Y4
L	L	H	H	L	H	L	L	L	L	L	H	L	L	Y5
L	L	H	H	H	L	L	L	L	L	L	L	H	L	Y6
L	L	H	H	H	H	L	L	L	L	L	L	L	H	Y7

X : DON'T CARE

SN74HC32N [TEXAS]
(2-Input OR Gate)

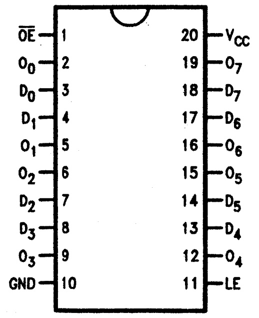

1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 V_{CC}
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y
(TOP VIEW)

SN74HC373N
(Octal Transparent Latch with TRI-STATE)

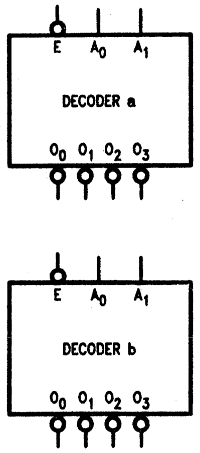

D_0 D_1 D_2 D_3 D_4 D_5 D_6 D_7
LE
OE
O_0 O_1 O_2 O_3 O_4 O_5 O_6 O_7

Inputs			Output
LE	$\overline{OE}$	D_n	O_n
H	L	H	H
H	L	L	L
L	L	X	O_n (no change)
X	H	X	Z

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial
Z = High Impedance State

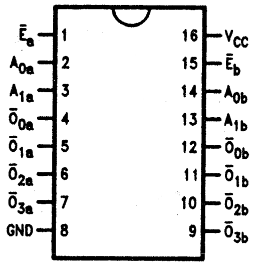

$\overline{OE}$ 1
O_0 2
D_0 3
D_1 4
O_1 5
O_2 6
D_2 7
D_3 8
O_3 9
GND 10
20 V_{CC}
19 O_7
18 D_7
17 D_6
16 O_6
15 O_5
14 D_5
13 D_4
12 O_4
11 LE

SN74HC139N [TEXAS]
(Dual 2 to 4 Line Driver)

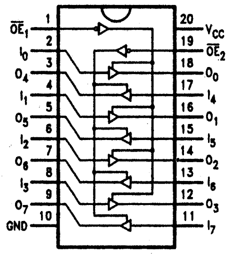

E A_0 A_1
DECODER a
O_0 O_1 O_2 O_3
E A_0 A_1
DECODER b
O_0 O_1 O_2 O_3

Inputs			Outputs			
$\bar{E}$	A_0	A_1	$\bar{O}_0$	$\bar{O}_1$	$\bar{O}_2$	$\bar{O}_3$
H	X	X	H	H	H	H
L	L	L	L	H	H	H
L	H	L	H	L	H	H
L	L	H	H	H	L	H
L	H	H	H	H	H	L

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial


$\bar{E}_a$ 1
A_{0a} 2
A_{1a} 3
$\bar{O}_{0a}$ 4
$\bar{O}_{1a}$ 5
$\bar{O}_{2a}$ 6
$\bar{O}_{3a}$ 7
GND 8
16 V_{CC}
15 $\bar{E}_b$
14 A_{0b}
13 A_{1b}
12 $\bar{O}_{0b}$
11 $\bar{O}_{1b}$
10 $\bar{O}_{2b}$
9 $\bar{O}_{3b}$

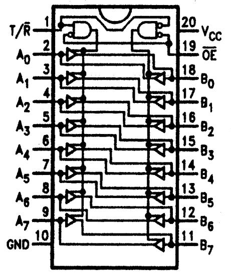
SN74HC244N [TEXAS]
(Octal Bus Buffer With TTL Input Level)


$\overline{OE}_1$ 1
I_0 2
O_4 3
I_1 4
O_5 5
I_2 6
O_6 7
I_3 8
O_7 9
GND 10
20 V_{CC}
19 $\overline{OE}_2$
18 O_0
17 I_4
16 O_1
15 I_5
14 O_2
13 I_6
12 O_3
11 I_7

$\overline{OE}_1$	D_{1n}	O_{1n}	$\overline{OE}_2$	D_{2n}	O_{2n}
H	X	Z	H	X	Z
L	H	H	L	H	H
L	L	L	L	L	L

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial
Z = High Impedance

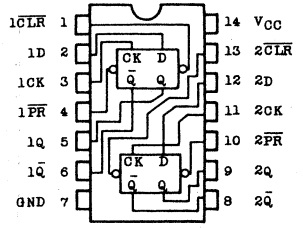
SN74HC245N [TEXAS]
(Octal Bus Transceiver)


T/$\bar{R}$ 1
A_0 2
A_1 3
A_2 4
A_3 5
A_4 6
A_5 7
A_6 8
A_7 9
GND 10
20 V_{CC}
19 $\overline{OE}$
18 B_0
17 B_1
16 B_2
15 B_3
14 B_4
13 B_5
12 B_6
11 B_7

Inputs		Output
$\overline{OE}$	T/$\bar{R}$	
L	L	Bus B Data to Bus A
L	H	Bus A Data to Bus B
H	X	High Z State

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial

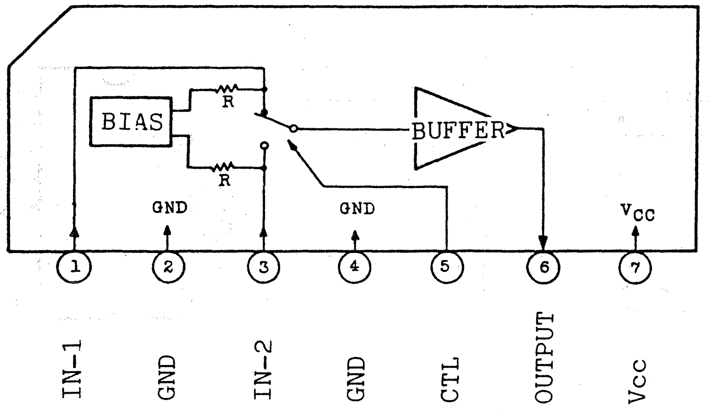
SN74HC74N [TEXAS]
(Dual D-Flip Flop)


1$\overline{CLR}$ 1
1D 2
1CK 3
1$\overline{PR}$ 4
1Q 5
1$\bar{Q}$ 6
GND 7
14 V_{CC}
13 2$\overline{CLR}$
12 2D
11 2CK
10 2$\overline{PR}$
9 2Q
8 2$\bar{Q}$
CK D
$\bar{Q}$ Q
CK D
$\bar{Q}$ Q

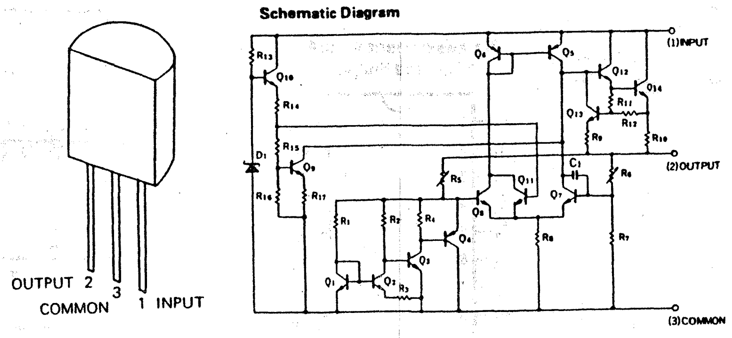
INPUTS				OUTPUTS		FUNCTION
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\bar{Q}$	
L	H	*	*	L	H	CLEAR
H	L	*	*	H	L	PRESET
L	L	*	*	H	H	—
H	H	L	↑	L	H	—
H	H	H	↑	H	L	—
H	H	*	↓	Qn	$\bar{Q}$n	NO CHANGE

* Don't care

TA7347P [TOSHIBA]
(2-Input Switch)


BIAS
R
R
BUFFER
GND
GND
V_{CC}
1
2
3
4
5
6
7
IN-1
GND
IN-2
GND
CTL
OUTPUT
Vcc

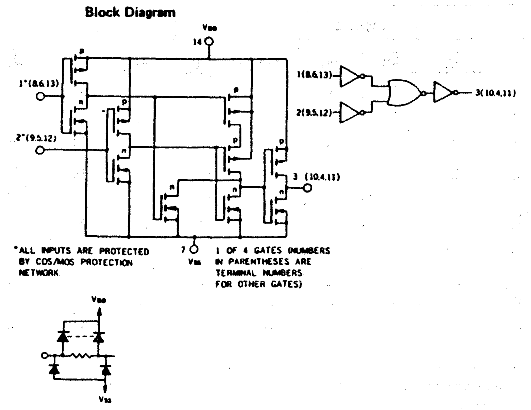
TA78L005AP [TOSHIBA]
(Voltage Regulator)


Schematic Diagram
OUTPUT 2
COMMON 3
1 INPUT
(1)INPUT
(2)OUTPUT
(3)COMMON

TA78L005AP→ 5 V
TA78L012AP→ 12V

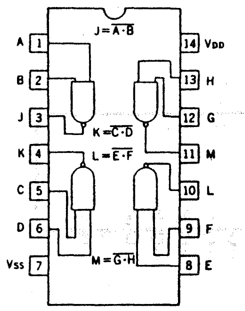
TC4011BP [TOSHIBA]
(Quad 2 Input Nand Gate)

Block Diagram

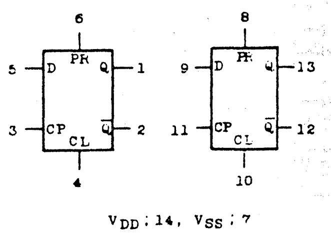

V_{DD}
14
1*(8.6.13)
2*(9.5.12)
p
n
3 (10.4.11)
7
V_{SS}
1(8.6.13)
2(9.5.12)
3(10.4.11)
V_{DD}
V_{SS}

*ALL INPUTS ARE PROTECTED BY COS/MOS PROTECTION NETWORK

1 OF 4 GATES (NUMBERS IN PARENTHESES ARE TERMINAL NUMBERS FOR OTHER GATES)


A 1
B 2
J 3
K 4
C 5
D 6
Vss 7
14 VDD
13 H
12 G
11 M
10 L
9 F
8 E
J = $\overline{A \cdot B}$
K = $\overline{C \cdot D}$
L = $\overline{E \cdot F}$
M = $\overline{G \cdot H}$

TC4013BAP [TOSHIBA]
(Dual Flip Flop)

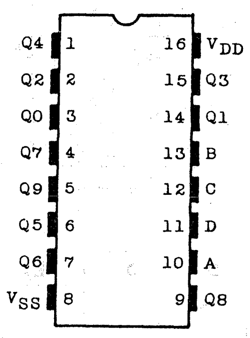

6
5
D
PR
Q
1
3
CP
CL
$\bar{Q}$
2
4
8
9
D
PR
Q
13
11
CP
CL
$\bar{Q}$
12
10

V_{DD} : 14, V_{SS} : 7

INPUTS				OUTPUTS	
CL	PR	D	CP △	Q_{n+1}	$\bar{Q}_{n+1}$
L	H	※	※	H	L
H	L	※	※	L	H
H	H	※	※	L	H
L	L	L	↑	L	H
L	L	H	↑	H	L
L	L	※	↓	Q_n •	$\bar{Q}_n$ •

※ ; Don't Care
△ ; Level Change
• ; No Change

TC4028BP [TOSHIBA]
BCD TO DECIMAL DECODER


Q4 1
Q2 2
Q0 3
Q7 4
Q9 5
Q5 6
Q6 7
V_{SS} 8
16 V_{DD}
15 Q3
14 Q1
13 B
12 C
11 D
10 A
9 Q8

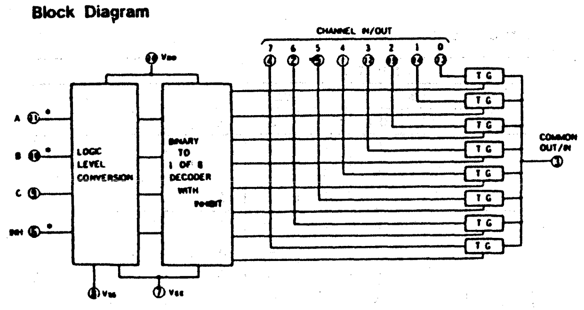
(TOP VIEW)

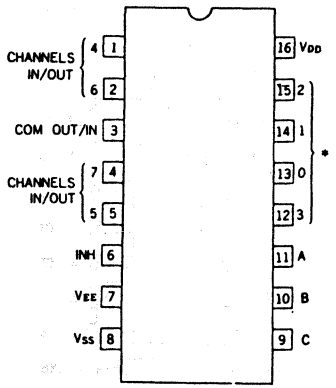
INPUTS				OUTPUTS									
D	C	B	A	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
L	L	L	L	H	L	L	L	L	L	L	L	L	L
L	L	L	H	L	H	L	L	L	L	L	L	L	L
L	L	H	L	L	L	H	L	L	L	L	L	L	L
L	L	H	H	L	L	L	H	L	L	L	L	L	L
L	H	L	L	L	L	L	L	H	L	L	L	L	L
L	H	L	H	L	L	L	L	L	H	L	L	L	L
L	H	H	L	L	L	L	L	L	L	H	L	L	L
L	H	H	H	L	L	L	L	L	L	L	H	L	L
H	L	L	L	L	L	L	L	L	L	L	L	H	L
H	L	L	H	L	L	L	L	L	L	L	L	L	H
H	L	H	L	L	L	L	L	L	L	L	L	L	L
H	L	H	H	L	L	L	L	L	L	L	L	L	L
H	H	L	L	L	L	L	L	L	L	L	L	L	L
H	H	L	H	L	L	L	L	L	L	L	L	L	L
H	H	H	L	L	L	L	L	L	L	L	L	L	L
H	H	H	H	L	L	L	L	L	L	L	L	L	L

H=HIGH LEVEL L= LOW LEVEL

TC4051BP [TOSHIBA]
(Single 8-channel Multiplexer/Demultiplexer)

Block Diagram


CHANNEL IN/OUT
7 6 5 4 3 2 1 0
V_{DD}
A
B
C
INH
LOGIC LEVEL CONVERSION
BINARY TO 1 OF 8 DECODER WITH INHIBIT
TG
COMMON OUT/IN
3
V_{SS}
7 V_{EE}


CHANNELS IN/OUT
4 1
6 2
COM OUT/IN 3
CHANNELS IN/OUT
7 4
5 5
INH 6
VEE 7
Vss 8
16 VDD
15 2
14 1
13 0
12 3
11 A
10 B
9 C
*

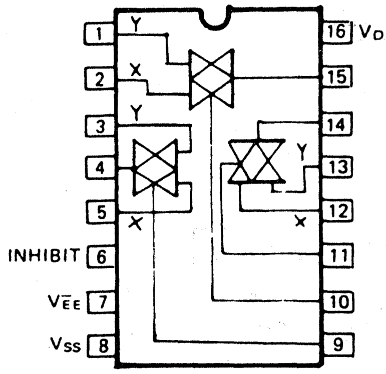
*CHANNELS IN/OUT TOP VIEW

TRUTH TABLE

INPUT STATES				"ON" CHANNEL(S)
INHIBIT	C	B	A	
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7
1	X	X	X	NONE

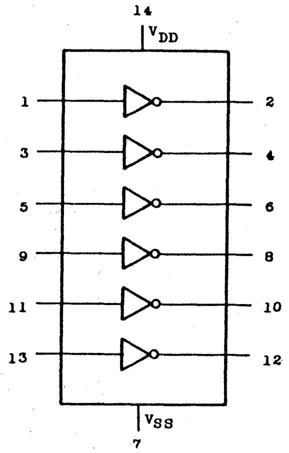
X = Don't care

TC4053BP [TOSHIBA]
(Tripple 2 Channel Multiplexer/Demulti Plexer)

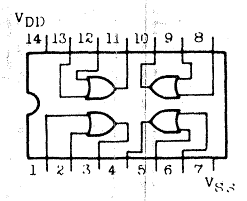

1
2
3
4
5
INHIBIT 6
V_{EE} 7
Vss 8
16 VDD
15
14
13
12
11
10
9
Y
X
Y
Y
X
X

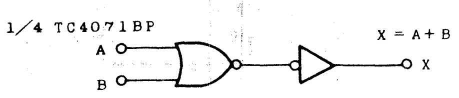
CONTROL H : Y OUTPUT

TC4069UBP [TOSHIBA]
(Hex Inverter)

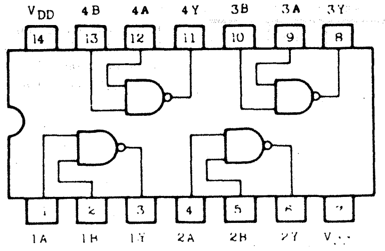

14
V_{DD}
1
2
3
4
5
6
9
8
11
10
13
12
V_{SS}
7

TC4071BP [TOSHIBA]
(Quad 2-Input Positive or Gate)

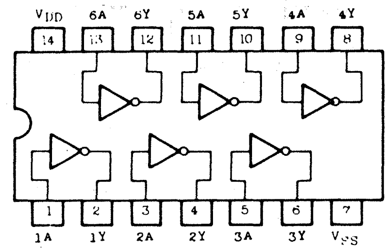

V_{DD}
14 13 12 11 10 9 8
1 2 3 4 5 6 7
V_{SS}


1/4 TC4071BP
A
B
X = A + B
X

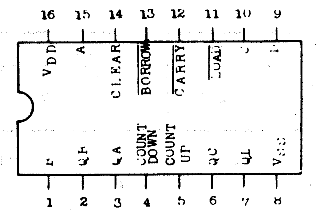
TC40H000P/TC74HC00AP [TOSHIBA]
(Quad 2-Input Nand Gate)


V_{DD} 4B 4A 4Y 3B 3A 3Y
14 13 12 11 10 9 8
1 2 3 4 5 6 7
1A 1B 1Y 2A 2B 2Y V_{SS}

TC40H004P/TC74HCU04AP [TOSHIBA]
(Hex Inverter)


V_{DD} 6A 6Y 5A 5Y 4A 4Y
14 13 12 11 10 9 8
1 2 3 4 5 6 7
1A 1Y 2A 2Y 3A 3Y V_{SS}

TC40H193P [TOSHIBA]
(Synchronous 4-Bit Binary Up/Down Counter Dual Clock With Clear)

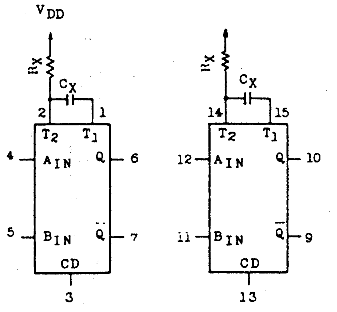


16 15 14 13 12 11 10 9
VDD
CLEAR
BORROW
CARRY
LOAD
COUNT DOWN
COUNT UP
VSS
1 2 3 4 5 6 7 8

COUNT UP	COUNT DOWN	LOAD	CLEAR	ACTION
↑	H	H	L	COUNT UP
↓	H	H	L	NO COUNT
H	↑	H	L	COUNT DOWN
H	↓	H	L	NO COUNT
*	*	L	L	PRESET
*	*	*	H	RESET

* Don't care

TC4538BP [TOSHIBA]
(Resettable MONO Maltivibrator)



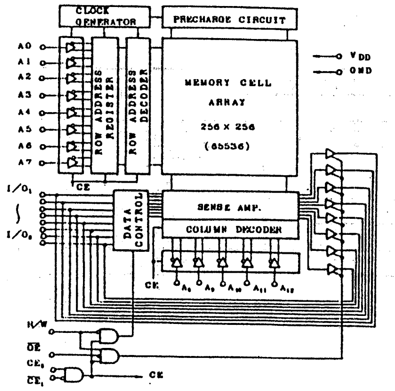
VDD
Rx
Cx
2 1
14 15
T2 T1
4 AIN Q 6
12 AIN Q 10
5 BIN Q̄ 7
11 BIN Q̄ 9
CD
3
13

V_{DD} : 16, V_{SS} : 8

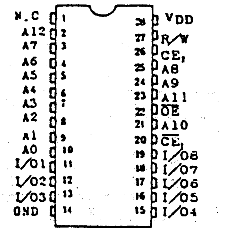
INPUT			OUTPUT		NOTE
A_{IN}	B_{IN}	CD	Q	$\overline{Q}$	
↑	H	H	⎍	⊔	OUTPUT ENABLE
↑	L	H	L	H	INHIBIT
H	↓	H	L	H	INHIBIT
L	↓	H	⎍	⊔	OUTPUT ENABLE
※	※	L	L	H	INHIBIT

※ Don't Care

TC5564APL-15 [TOSHIBA] (SRAM)

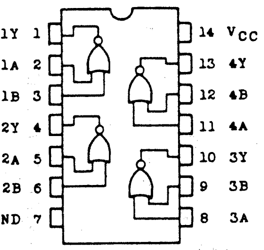


CLOCK GENERATOR
PRECHARGE CIRCUIT
A0
A1
A2
A3
A4
A5
A6
A7
ROW ADDRESS REGISTER
ROW ADDRESS DECODER
MEMORY CELL ARRAY 256 × 256 (65536)
VDD
GND
I/O1
I/O8
DATA CONTROL
SENSE AMP.
COLUMN DECODER
CE
CK
R/W
OE
CE1
CE2



N.C 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
I/O1 11
I/O2 12
I/O3 13
GND 14
28 VDD
27 R/W
26 CE2
25 A8
24 A9
23 A11
22 OE
21 A10
20 CE1
19 I/O8
18 I/O7
17 I/O6
16 I/O5
15 I/O4

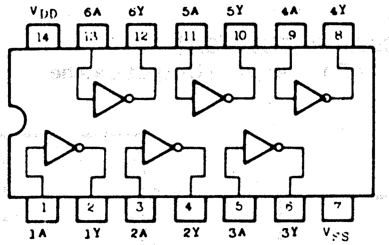
TC74HC02AP
(Quad 2-Input Nor Gate)



1Y 1
1A 2
1B 3
2Y 4
2A 5
2B 6
GND 7
14 Vcc
13 4Y
12 4B
11 4A
10 3Y
9 3B
8 3A

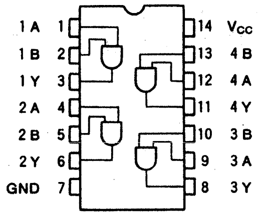
(TOP VIEW)

TC74HC04AP [TOSHIBA]
(Hex Buffer/Converter Inverting Type)



VDD 6A 6Y 5A 5Y 4A 4Y
14 13 12 11 10 9 8
1 2 3 4 5 6 7
1A 1Y 2A 2Y 3A 3Y VSS

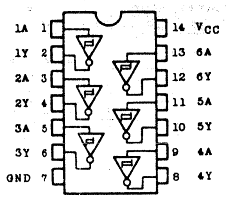
TC74HC08AP [TOSHIBA]
(2-Input AND Gate)



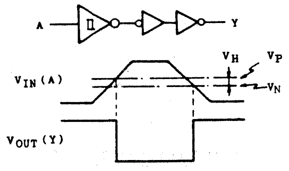
1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
GND 7
14 Vcc
13 4B
12 4A
11 4Y
10 3B
9 3A
8 3Y

A	B	Y
L	L	L
L	H	L
H	L	L
H	H	H

TC74HC14AP [TOSHIBA]
(Hex schmitt inverter)

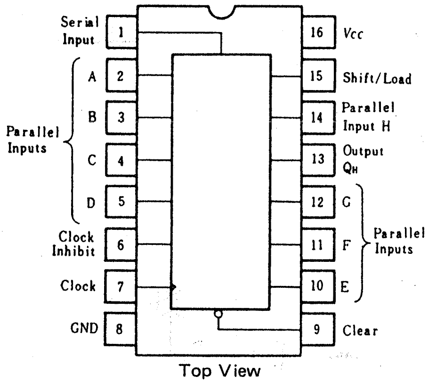


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 Vcc
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y



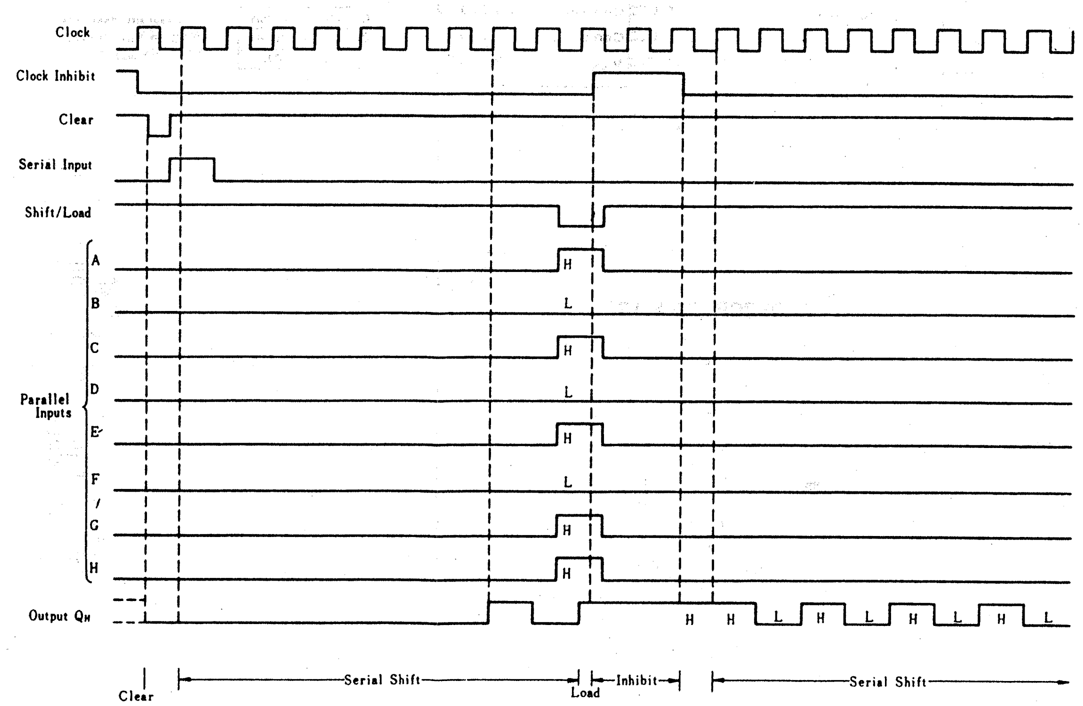
Vcc=4.5 V V_P=2.7 V typ.
V_N=1.6 V typ.

TC74HC166AP [TOSHIBA]
(8-bit Shift Register)

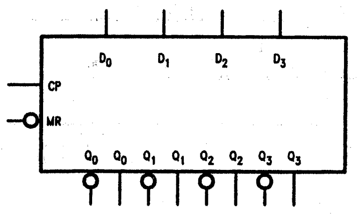


Serial Input 1
Parallel Inputs
A 2
B 3
C 4
D 5
Clock Inhibit 6
Clock 7
GND 8
16 Vcc
15 Shift/Load
14 Parallel Input H
13 Output QH
12 G
11 F
10 E
Parallel Inputs
9 Clear
Top View

Input						Internal State		Output
Clear	Shift/ Load	Clock Inhibit	Clock	Serial	Parallel			
					A··· H	Q_A	Q_B	Q_H
L	×	×	×	×	×	L	L	L
H	×	L	L	×	×	Q_{AO}	Q_{BO}	Q_{HO}
H	L	L	↑	×	a···h	a	b	h
H	H	L	↑	H	×	H	Q_{An}	Q_{Gn}
H	H	L	↑	L	×	L	Q_{An}	Q_{Gn}
H	×	H	↑	×	×	Q_{AO}	Q_{BO}	Q_{HO}



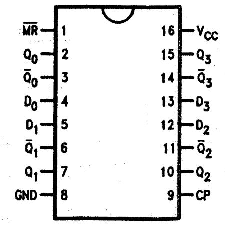
TC74HC175AP [TOSHIBA]
(Quad D-Flip-Flop)



D0 D1 D2 D3
CP
MR
Q0 Q̄0 Q1 Q̄1 Q2 Q̄2 Q3 Q̄3

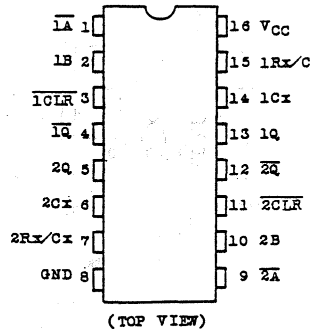
Inputs			Outputs	
$\overline{MR}$	CP	D_n	Q_n	$\overline{Q}_n$
L	X	X	L	H
H	⟋	H	H	L
H	⟋	L	L	H

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial
⟋ = LOW-to-HIGH Clock Transition



MR 1
Q0 2
Q̄0 3
D0 4
D1 5
Q̄1 6
Q1 7
GND 8
16 Vcc
15 Q3
14 Q̄3
13 D3
12 D2
11 Q̄2
10 Q2
9 CP

TC74HC221AP [TOSHIBA]
(Dual Monostable Multivibrator)



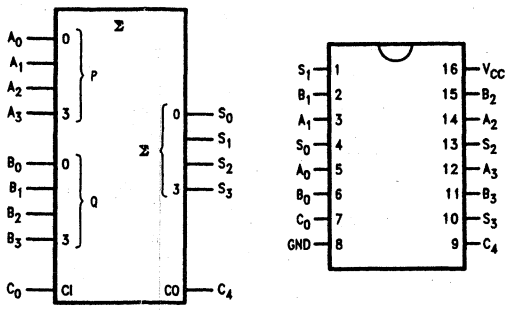
$\overline{1A}$ 1
1B 2
$\overline{1CLR}$ 3
$\overline{1Q}$ 4
2Q 5
2Cx 6
2Rx/Cx 7
GND 8
16 V_{CC}
15 1Rx/Cx
14 1Cx
13 1Q
12 $\overline{2Q}$
11 $\overline{2CLR}$
10 2B
9 $\overline{2A}$
(TOP VIEW)

True Table

INPUTS			OUTPUTS		NOTE
$\overline{A}$	B	CL	Q	$\overline{Q}$	
↓	H	H	⎍	⊔	OUTPUT ENABLE
X	L	H	L	H	INHIBIT
H	X	H	L	H	INHIBIT
L	↑	H	⎍	⊔	OUTPUT ENABLE
L	H	↑	⎍	⊔	OUTPUT ENABLE
X	X	L	L	H	INHIBIT

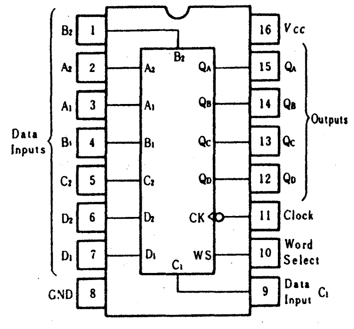
X : DON'T CARE

TC74HC283AP [TOSHIBA]
(4-bit Binary Full Adder with Fast Carry)



Σ
A_0
A_1
A_2
A_3
P
B_0
B_1
B_2
B_3
Q
C_0
CI
CO
C_4
S_0
S_1
S_2
S_3
S_1 1
B_1 2
A_1 3
S_0 4
A_0 5
B_0 6
C_0 7
GND 8
16 V_{CC}
15 B_2
14 A_2
13 S_2
12 A_3
11 B_3
10 S_3
9 C_4

TC74HC298AP [TOSHIBA]
(Quad 2-Input Multiplexer with Strage)

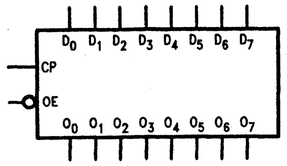


Data Inputs
B_2 1
A_2 2
A_1 3
B_1 4
C_2 5
D_2 6
D_1 7
GND 8
16 Vcc
15 Q_A
14 Q_B
13 Q_C
12 Q_D
Outputs
11 Clock
10 Word Select
9 Data Input C_1
CK
WS

Top View

入	力	出			力
Word Select	Clock	Q_A	Q_B	Q_C	Q_D
L	↓	a_1	b_1	c_1	d_1
H	↓	a_2	b_2	c_2	d_2
×	H	Q_{AO}	Q_{BO}	Q_{CO}	Q_{DO}

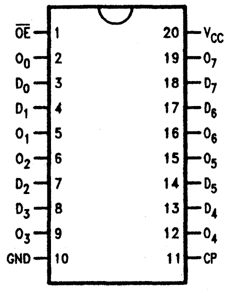
TC74HC374AP [TOSHIBA]
(Qctal D-Flip-Flop with TRI-STATE)



D_0 D_1 D_2 D_3 D_4 D_5 D_6 D_7
CP
OE
O_0 O_1 O_2 O_3 O_4 O_5 O_6 O_7

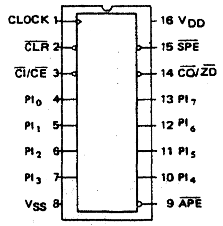
Inputs			Internal Register	Output
D_n	CP	$\overline{OE}$		O_n
H	↗	L	H	H
L	↗	L	L	L
X	X	H	X	Z

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial
Z = High Impedance
↗ = LOW-to-HIGH Clock Transition



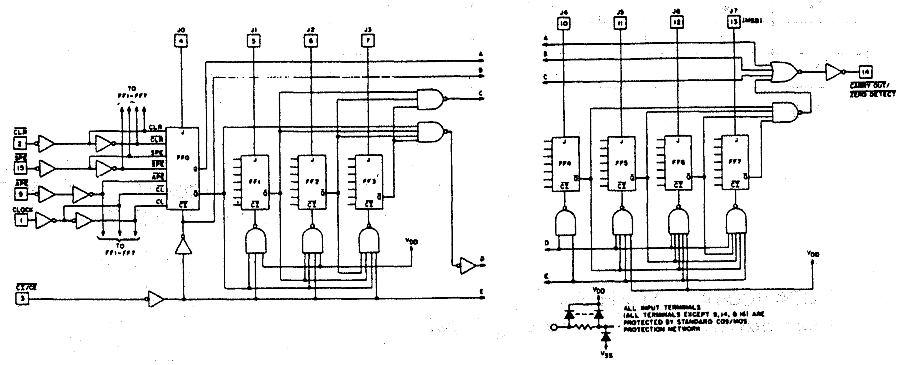
$\overline{OE}$ 1
O_0 2
D_0 3
D_1 4
O_1 5
O_2 6
D_2 7
D_3 8
O_3 9
GND 10
20 V_{CC}
19 O_7
18 D_7
17 D_6
16 O_6
15 O_5
14 D_5
13 D_4
12 O_4
11 CP

TC74HC40103AP [TOSHIBA] (Presetable Down Counter)



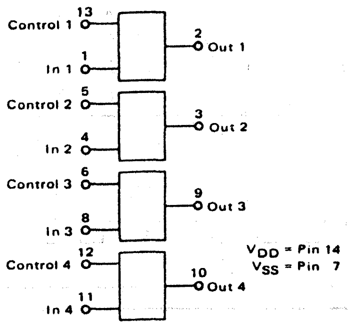
CLOCK 1
$\overline{CLR}$ 2
$\overline{CI}/\overline{CE}$ 3
PI_0 4
PI_1 5
PI_2 6
PI_3 7
V_{SS} 8
16 V_{DD}
15 $\overline{SPE}$
14 $\overline{CO}/\overline{ZD}$
13 PI_7
12 PI_6
11 PI_5
10 PI_4
9 $\overline{APE}$

CONTROL INPUTS				PRESET MODE	ACTION
$\overline{CLR}$	$\overline{APE}$	$\overline{SPE}$	$\overline{CI}/\overline{CE}$		
1	1	1	1	Synchronous	Inhibit counter
1	1	1	0		Count down
1	1	0	X		Preset on next positive clock transition
1	0	X	X	Asynchronous	Preset asynchronously
0	X	X	X		Clear to maximum count

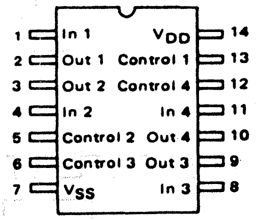


FF0
FF1
FF2
FF3
FF4
FF5
FF6
FF7
CLR
SPE
APE
CLOCK
ALL INPUT TERMINALS (ALL TERMINALS EXCEPT 8, 14, & 16) ARE PROTECTED BY STANDARD COS/MOS PROTECTION NETWORK
V_{DD}
V_{SS}

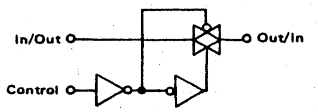
TC74HC4066AP [TOSHIBA]
(Quad Analog Switch)



13
Control 1
1
In 1
2
Out 1
5
Control 2
4
In 2
3
Out 2
6
Control 3
8
In 3
9
Out 3
12
Control 4
11
In 4
10
Out 4
V_{DD} = Pin 14
V_{SS} = Pin 7



1 In 1
2 Out 1
3 Out 2
4 In 2
5 Control 2
6 Control 3
7 V_{SS}
V_{DD} 14
Control 1 13
Control 4 12
In 4 11
Out 4 10
Out 3 9
In 3 8

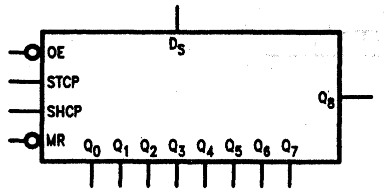


In/Out
Out/In
Control

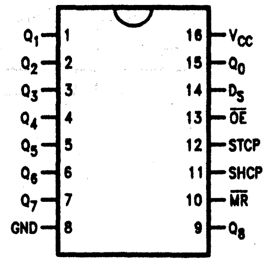
Control	Switch
0 = V_{SS}	OFF
1 = V_{DD}	ON

Logic Diagram Restrictions
$V_{SS} \leq V_{in} \leq V_{DD}$
$V_{SS} \leq V_{out} \leq V_{DD}$

TC74HC595AP [TOSHIBA]
(8-bit Shift Register with Output Latches)

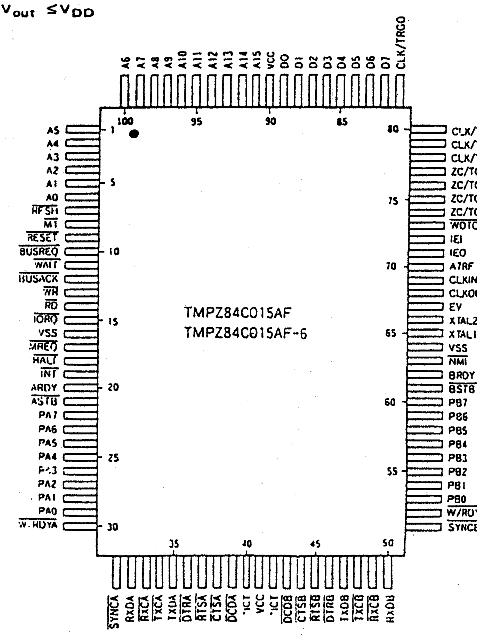


OE
STCP
SHCP
MR
D_S
Q_8
Q_0 Q_1 Q_2 Q_3 Q_4 Q_5 Q_6 Q_7

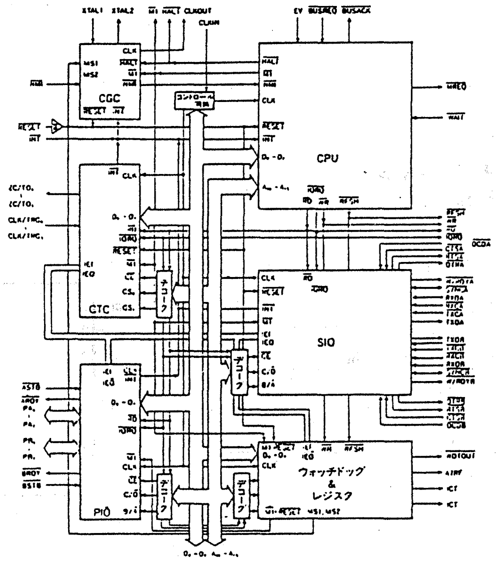


Q_1 1
Q_2 2
Q_3 3
Q_4 4
Q_5 5
Q_6 6
Q_7 7
GND 8
16 V_{CC}
15 Q_0
14 D_S
13 $\overline{OE}$
12 STCP
11 SHCP
10 $\overline{MR}$
9 Q_8

TMPZ84C015AF-6 [TOSHIBA] (CPU)

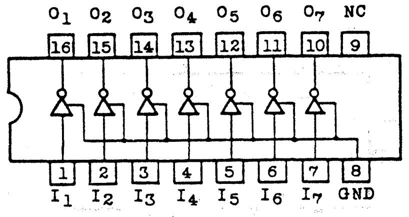


TMPZ84C015AF
TMPZ84C015AF-6
A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 VCC D0 D1 D2 D3 D4 D5 D6 D7 CLK/TRG0
A5 A4 A3 A2 A1 A0 $\overline{RFSH}$ $\overline{M1}$ $\overline{RESET}$ $\overline{BUSREQ}$ $\overline{WAIT}$ $\overline{BUSACK}$ $\overline{WR}$ $\overline{RD}$ $\overline{IORQ}$ VSS $\overline{MREQ}$ $\overline{HALT}$ $\overline{INT}$ ARDY $\overline{ASTB}$ PA7 PA6 PA5 PA4 PA3 PA2 PA1 PA0 $\overline{W/RDYA}$
CLK/TRG1 CLK/TRG2 CLK/TRG3 ZC/TO3 ZC/TO2 ZC/TO1 ZC/TO0 $\overline{WDTOUT}$ IEI IEO A7RF CLKIN CLKOUT EV XTAL2 XTAL1 VSS $\overline{NMI}$ BRDY $\overline{BSTB}$ PB7 PB6 PB5 PB4 PB3 PB2 PB1 PB0 $\overline{W/RDYB}$ $\overline{SYNCB}$
$\overline{SYNCA}$ RXDA $\overline{RxCA}$ $\overline{TxCA}$ TXDA $\overline{DTRA}$ $\overline{RTSA}$ $\overline{CTSA}$ $\overline{DCDA}$ ICT VCC ICT $\overline{DCDB}$ $\overline{CTSB}$ $\overline{RTSB}$ $\overline{DTRB}$ TxDB $\overline{TxCB}$ $\overline{RxCB}$ RxDB
1 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100



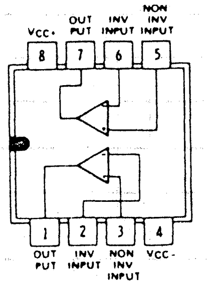
CGC
CPU
CTC
SIO
PIO
ウォッチドッグ & レジスタ

TD62503P [TOSHIBA]
(Driver)



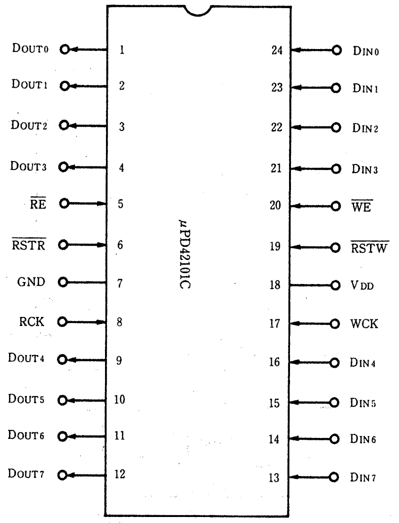
O_1 O_2 O_3 O_4 O_5 O_6 O_7 NC
16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
I_1 I_2 I_3 I_4 I_5 I_6 I_7 GND

TL082CP [TEXAS]



VCC+
OUT PUT
INV INPUT
NON INV INPUT
8 7 6 5
1 2 3 4
OUT PUT
INV INPUT
NON INV INPUT
VCC-

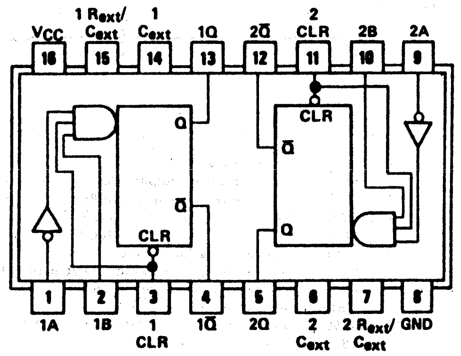
UPD42101C-1 [NEC]
(High-speed Line Buffer)


DOUT0 1
DOUT1 2
DOUT2 3
DOUT3 4
RE 5
RSTR 6
GND 7
RCK 8
DOUT4 9
DOUT5 10
DOUT6 11
DOUT7 12
μPD42101C
24 DIN0
23 DIN1
22 DIN2
21 DIN3
20 WE
19 RSTW
18 VDD
17 WCK
16 DIN4
15 DIN5
14 DIN6
13 DIN7

DIN0-DIN7	: Data input
DOUT0-DOUT7	: Data output
WCK	: Write clock input
RCK	: Read clock input
$\overline{\mathrm{WE}}$	: Write enable input
$\overline{\mathrm{RE}}$	: Read enable input
$\overline{\mathrm{RSTW}}$	: Reset Write input
$\overline{\mathrm{RSTR}}$	: Reset Read input
VDD	: Power Source
GND	: Ground

UPD74HC123AC [NEC]
(Retriggerable Monostable Multivibrator)

INPUTS			OUTPUTS	
CLEAR	A	B	Q	$\overline{\mathrm{Q}}$
L	X	X	L	H
X	H	X	L*	H*
X	X	L	L*	H*
H	L	↑	⎍	⊔
H	↓	H	⎍	⊔
↑	L	H	⎍	⊔

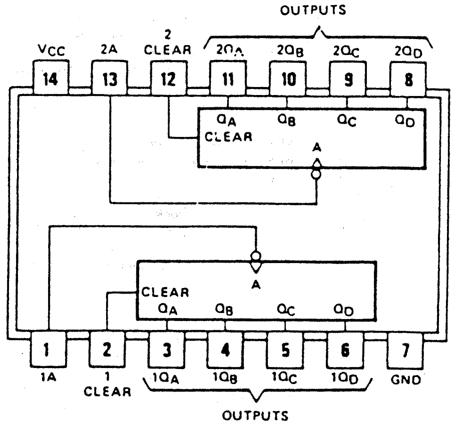

Vcc
1 Rext/Cext
1 Cext
1Q
2$\overline{\mathrm{Q}}$
2 CLR
2B
2A
16
15
14
13
12
11
10
9
CLR
Q
$\overline{\mathrm{Q}}$
CLR
Q
$\overline{\mathrm{Q}}$
1
2
3
4
5
6
7
8
1A
1B
1 CLR
1$\overline{\mathrm{Q}}$
2Q
2 Cext
2 Rext/Cext
GND

UPD74HC393C [NEC]
(Dual 4-bit Binaly Counters)

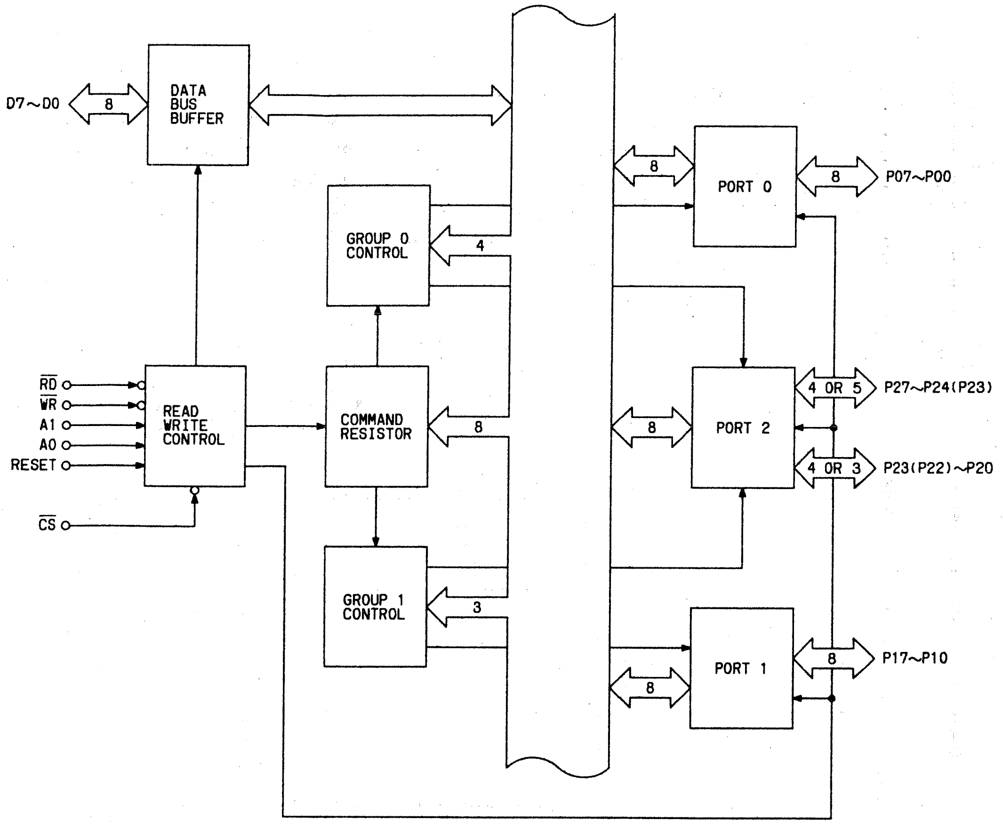
COUNT SEQUENCE
(EACH COUNTER)

COUNT	OUTPUT			
	Q_D	Q_C	Q_B	Q_A
0	L	L	L	L
1	L	L	L	H
2	L	L	H	L
3	L	L	H	H
4	L	H	L	L
5	L	H	L	H
6	L	H	H	L
7	L	H	H	H
8	H	L	L	L
9	H	L	L	H
10	H	L	H	L
11	H	L	H	H
12	H	H	L	L
13	H	H	L	H
14	H	H	H	L
15	H	H	H	H

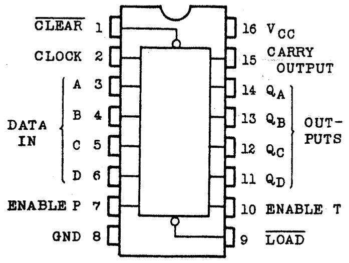
(TOP VIEW)


OUTPUTS
VCC
2A
2 CLEAR
2QA
2QB
2QC
2QD
14
13
12
11
10
9
8
QA
QB
QC
QD
CLEAR
A
CLEAR
A
QA
QB
QC
QD
1
2
3
4
5
6
7
1A
1 CLEAR
1QA
1QB
1QC
1QD
GND
OUTPUTS

UPD71055C [NEC] (Parallel Input/Output Port)


D7~D0
8
DATA BUS BUFFER
GROUP 0 CONTROL
4
PORT 0
8
8
P07~P00
RD
WR
A1
A0
RESET
READ WRITE CONTROL
COMMAND RESISTOR
8
PORT 2
8
4 OR 5
P27~P24(P23)
4 OR 3
P23(P22)~P20
CS
GROUP 1 CONTROL
3
PORT 1
8
8
P17~P10

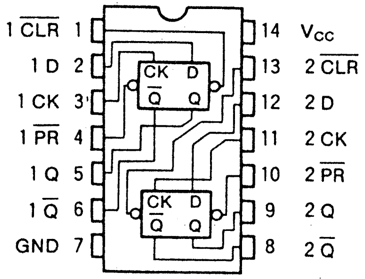
UPD74HC161C [NEC]
(4-bit Decoder)


CLEAR 1
CLOCK 2
A 3
B 4
C 5
D 6
DATA IN
ENABLE P 7
GND 8
16 VCC
15 CARRY OUTPUT
14 QA
13 QB
12 QC
11 QD
OUT-PUTS
10 ENABLE T
9 LOAD

UPD74HC161C					OUTPUTS				FUNCTION
INPUTS									
$\overline{\mathrm{CLR}}$	$\overline{\mathrm{LD}}$	PE	TE	CK	Q_A	Q_B	Q_C	Q_D	
L	*	*	*	*	L	L	L	L	REST TO "0"
H	L	*	*	⨍	A	B	C	D	PRESET DATA
H	H	*	L	⨍	NO CHANGE				NO COUNT
H	H	L	*	⨍	NO CHANGE				NO COUNT
H	H	H	H	⨍	COUNT UP				COUNT
H	*	*	*	⌊	NO CHANGE				NO COUNT

Note * ; Don't Care
A, B, C, D ; Logic Level of Data Inputs
Carry ; CARRY = $TE \cdot Q_A \cdot Q_B \cdot Q_C \cdot Q_D$

UPD74HC74C [NEC]
(Dual D-Type Flip-Flop with Preset and crear)


1 $\overline{\mathrm{CLR}}$ 1
1 D 2
1 CK 3
1 $\overline{\mathrm{PR}}$ 4
1 Q 5
1 $\overline{\mathrm{Q}}$ 6
GND 7
CK D
Q Q
CK D
Q Q
14 Vcc
13 2 $\overline{\mathrm{CLR}}$
12 2 D
11 2 CK
10 2 $\overline{\mathrm{PR}}$
9 2 Q
8 2 $\overline{\mathrm{Q}}$

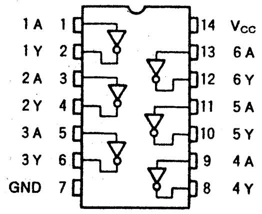
(TOP VIEW)

INPUTS				OUTPUTS		FUNCTION
$\overline{\mathrm{CLR}}$	$\overline{\mathrm{PR}}$	D	CK	Q	$\overline{\mathrm{Q}}$	
L	H	X	X	L	H	CLEAR
H	L	X	X	H	L	PRESET
L	L	X	X	H	H	—
H	H	L	⨍	L	H	—
H	H	H	⨍	H	L	—
H	H	X	⌊	Q_n	$\overline{Q}_n$	NO CHANGE

X : Don't care

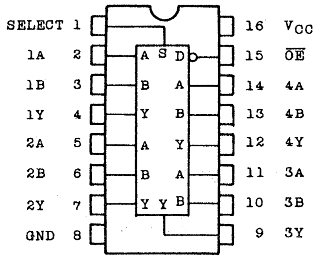
UPD74HC04C [NEC]

(Inverter)


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 Vcc
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y

A	Y
L	H
H	L

UPD74HC257C [NEC]
(Multiplexer)

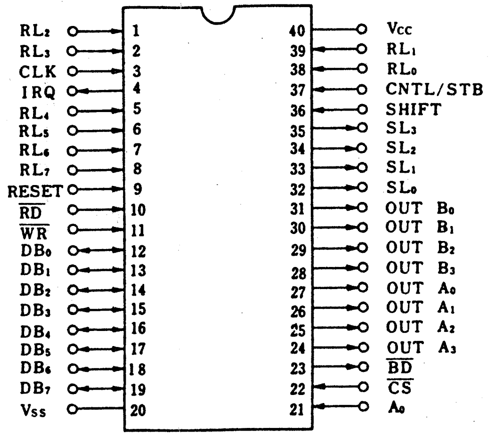

SELECT 1
1A 2
1B 3
1Y 4
2A 5
2B 6
2Y 7
GND 8
A S D
B A
Y B
A Y
B A
Y Y B
16 VCC
15 $\overline{\mathrm{OE}}$
14 4A
13 4B
12 4Y
11 3A
10 3B
9 3Y

INPUTS				OUTPUT	
$\overline{\mathrm{OE}}$	SELECT	A	B	Y (257)	$\overline{\mathrm{Y}}$ (258)
H	※	※	※	Z	Z
L	L	L	※	L	H
L	L	H	※	H	L
L	H	※	L	L	H
L	H	※	H	H	L

※ : Don't Care, Z : High Impedance

UPD8279C-5 [NEC] (Programable keyboard/Display Controller)

(Top View)

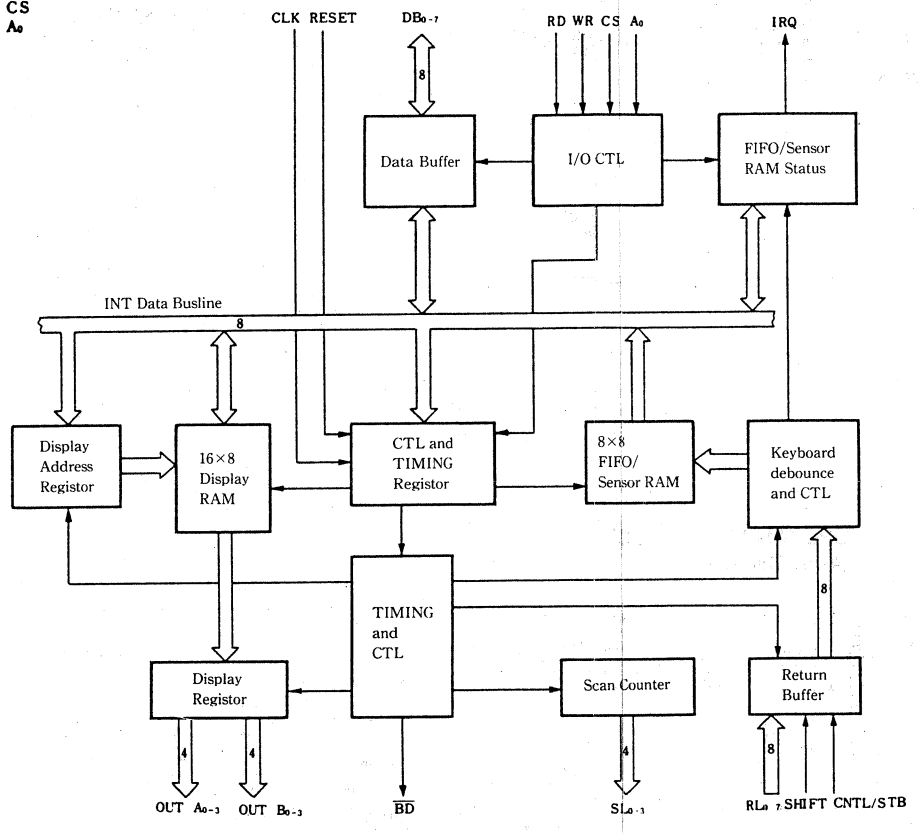


RL2 1
RL3 2
CLK 3
IRQ 4
RL4 5
RL5 6
RL6 7
RL7 8
RESET 9
RD 10
WR 11
DB0 12
DB1 13
DB2 14
DB3 15
DB4 16
DB5 17
DB6 18
DB7 19
Vss 20
40 Vcc
39 RL1
38 RL0
37 CNTL/STB
36 SHIFT
35 SL3
34 SL2
33 SL1
32 SL0
31 OUT B0
30 OUT B1
29 OUT B2
28 OUT B3
27 OUT A0
26 OUT A1
25 OUT A2
24 OUT A3
23 BD
22 CS
21 A0

CLK : Clock Input
RESET : Reset Input
$\overline{CS}$: Chip Select
$\overline{RD}$: Read Input
$\overline{WR}$: Write Input
A_0 : Buffer Address
IRQ : Interrupt Request output
SL_{0-3} : Scan Lines

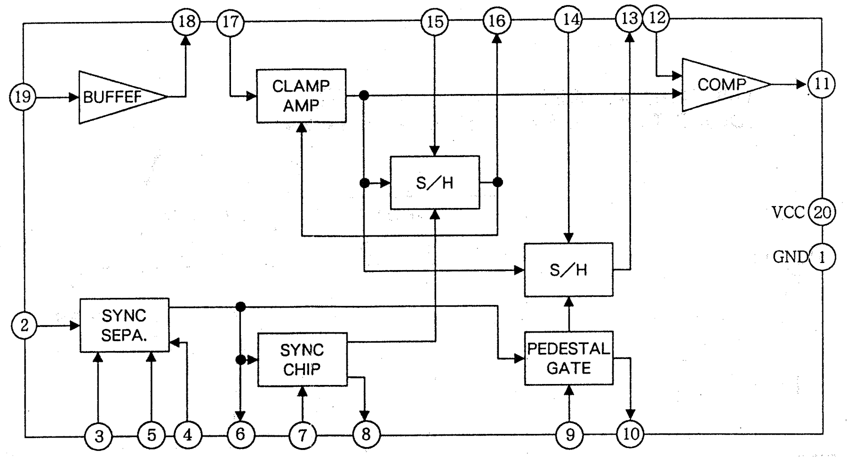
RL_{0-7} : Return Lines
SHIFT : Shift Input
CNTL/STB : Control/Strobe Input
$OUTA_{0-3}$: Display (A) outputs
$OUTB_{0-3}$: Display (B) outputs
$\overline{BD}$: Blank Display output
DB_{0-7} : Data Bus(Bi−Directional)

(μPD8279C-5)



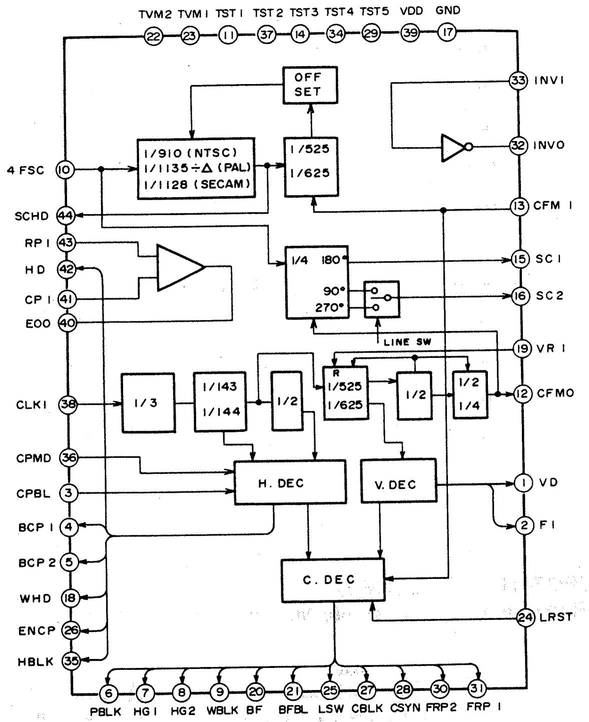
CLK RESET
DB0-7
RD WR CS A0
IRQ
8
Data Buffer
I/O CTL
FIFO/Sensor RAM Status
INT Data Busline
8
Display Address Registor
16×8 Display RAM
CTL and TIMING Registor
8×8 FIFO/ Sensor RAM
Keyboard debounce and CTL
TIMING and CTL
8
Display Registor
Scan Counter
Return Buffer
4
4
4
8
OUT A0-3
OUT B0-3
BD
SL0-3
RL0-7 SHIFT CNTL/STB

VC2100 [JVC] (Sync Separater)



18
17
15
16
14
13
12
19
BUFFER
CLAMP AMP
COMP
11
S/H
S/H
VCC 20
GND 1
2
SYNC SEPA.
SYNC CHIP
PEDESTAL GATE
3
5
4
6
7
8
9
10

UPD9316G [NEC] (Sync Signal Generator)



TVM2 TVM1 TST1 TST2 TST3 TST4 TST5 VDD GND
22 23 11 37 14 34 29 39 17
OFF SET
1/910 (NTSC)
1/1135+Δ (PAL)
1/1128 (SECAM)
1/525
1/625
33 INVI
32 INVO
13 CFM I
4 FSC 10
SCHD 44
RP I 43
HD 42
CP I 41
EOO 40
1/4 180°
90°
270°
15 SC I
16 SC 2
LINE SW
19 VR I
CLKI 38
1/3
1/143
1/144
1/2
R
1/525
1/625
1/2
1/2
1/4
12 CFMO
CPMD 36
CPBL 3
H. DEC
V. DEC
1 VD
2 F I
BCP I 4
BCP 2 5
C. DEC
WHD 18
ENCP 26
24 LRST
HBLK 35
6 7 8 9 20 21 25 27 28 30 31
PBLK HG I HG2 WBLK BF BFBL LSW CBLK CSYN FRP2 FRP I

Pin		Function
1	VD	V-Drive Pulse output
2	FI	Field Index Pulse output. (Odd : L EVEN : H)
3	CPBL	Clamp Pulse Blanking input (CPBL : H → BCP1, BCP2 : L)
4	BCP1	Optical Black Clamp Pulse output
5	BCP2	" (BCP1 + 0.8 μsec)
6	PBLK	Composite Blanking Output
7	HG1	H-Gate Pulse output (NTSC : Reset at 14H, PAL : 9H)
8	HG2	H-Gate Pulse output (NTSC : Reset at 277H, PAL : 322H)
9	WBLK	Wide Blanking Pulse Output
10	4FSC	4fsc input (NTSC : 14.31818, PAL : 17.734475)
11	TST1	Test Terminal
12	CFMO	Color Flaming Pulse Output
13	CFMI	" Input
14	TST3	Test Terminal
15	SC1	Sub Carrier output
16	SC2	" (NTSC : SC1 −90° PAL [LSW = L] : SC1 −90° PAL [LSW = H] : SC1 +90°)
17	GND	GND
18	WHD	Wide H-Drive Pulse output
19	VRI	V-Reset Pulse Input
20	BF	Burst Flag Pulse output
21	BFBL	Burst Flag Blanking
22	TVM2	L L H H
23	TVM1	L H L H
		NTSC X PAL SECAM
24	LRST	Reset Input for Line switch
25	LSW	Line Switch Pulse output
26	ENCP	Encorder Clamp Pulse output
27	CBLK	Composite Blanking output
28	CSYN	Composite Sync Signal output
29	TST5	Test Terminal
30	FRP2	Frame Read Pulse (For VTR Servo Lock)
31	FRP1	"
32	INVO	Inverter output
33	INVI	Inverter Input
34	TST4	Test Terminal
35	HBLK	H-transter Pulse Blanking
36	CPMD	
37	TST2	Test Terminal
38	CLKI	Master Clock Input
39	V_{DD}	+5 V Input
40	EOO	Phase Comparater output (PRI Compare CPI PRI Advance : ↗ CPI Advance : ↘ Equal : 0)
41	CPI	Clock input
42	HD	H-Drive Pulse output
43	PRI	Reference Clock input
44	SCHD	H-Drive Pulse output (SCHD = $\frac{4}{910}$ FSC)

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers. For maximum reliability and performance, all other replacement parts should be identical to those specified.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

RESISTORS – All resistance values are in ohms (Ω).

K	1 000
M	1 000 000
CR	Carbon Resistor
VR	Variable Resistor (Potentiometer)
MFR	Metal Film Resistor
Chip R	Chip Resistor

CAPACITORS – All capacitance values are in μF, unless otherwise indicated.

P	μμF
C Cap	Ceramic Capacitor
E Cap	Electrolytic Capacitor
FM Cap	Film Mica Capacitor
MY Cap	Mylar Capacitor
NP Cap	Non-polar Capacitor
T Cap	Tantalum Capacitor
TR Cap	Trimmer Capacitor
MP Cap	Metalized Paper Capacitor

7.1 MT (Mother) board assembly list $\boxed{0}\boxed{1}$

$\boxed{0}\boxed{1}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
CN1	SCV1705-200	CONNECTOR	200 pin
CN2	SCV1705-200	CONNECTOR	200 pin
CN3	SCV1705-200	CONNECTOR	200 pin
CN4	SCV1705-200	CONNECTOR	200 pin
CN5	SCV1705-200	CONNECTOR	200 pin
CN6	SCV1705-200	CONNECTOR	200 pin
CN12	SCV1930-100	CONNECTOR	100 pin
CN13	SCV1930-100	CONNECTOR	100 pin
CN14	SCV1930-100	CONNECTOR	100 pin
CN15	SCV1930-100	CONNECTOR	100 pin
CN16	SCV1930-100	CONNECTOR	100 Pin
CN21	SSV1209-L10	CONNECTOR	10 pin
CN22	SS30662-003	CONNECTOR	3 pin
CN23	SSV1591-L12	CONNECTOR	12 pin
CN24	SSV1591-L10	CONNECTOR	10 pin
CN25	SSV1591-L15	CONNECTOR	15 pin
CN26	SSV1591-L09	CONNECTOR	9 pin
CN27	SCV1074-014	CONNECTOR	14 pin
CN28	SCV1074-016	CONNECTOR	16 pin
CN29	SCV1074-014	CONNECTOR	14 pin
CN24	SSV1591-S06	CONNECTOR	6 pin
CN25	SSV1591-S14	CONNECTOR	14 pin
CN27	SCV1073-014	CONNECTOR	14 pin

7.2 BNC board assembly list $\boxed{0}\boxed{2}$

$\boxed{0}\boxed{2}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
LC1	SCV1982-106	EMI FILTER	
LC2	SCV1982-106	EMI FILTER	
SW1	QSS1F22-S01	SLIDE SWITCH	COMP-Y/C 1
SW2	QSS1F22-S01	SLIDE SWITCH	COMP-Y/C 2
SW3	QSS1F22-S01	SLIDE SWITCH	COMP-Y/C 3
SW4	QSS1F22-S01	SLIDE SWITCH	COMP-Y/C 4
CN1	SCV1751-002	CONNECTOR	BNC
CN2	SCV1751-002	CONNECTOR	BNC
CN3	SCV1751-002	CONNECTOR	BNC
CN4	SCV1751-002	CONNECTOR	BNC
CN5	SCV1751-002	CONNECTOR	BNC
CN6	SCV1751-002	CONNECTOR	BNC
CN7	SCV1751-002	CONNECTOR	BNC
CN8	SCV1751-002	CONNECTOR	BNC
CN9	SCV1751-002	CONNECTOR	BNC
CN10	SCV1751-002	CONNECTOR	BNC
CN11	SCV1751-002	CONNECTOR	BNC
CN12	SCV1751-002	CONNECTOR	BNC
CN13	SSV1591-S02	CONNECTOR	2 pin
CN14	SSV1591-S02	CONNECTOR	2 pin
CN15	SSV1591-S02	CONNECTOR	2 pin
CN16	SSV1591-S02	CONNECTOR	2 pin
CN23	SSV1591-S06	CONNECTOR	6 pin
CN23	SSV1591-S06	CONNECTOR	6 pin
CN24	SSV1591-S02	CONNECTOR	2 pin
CN24	SSV1591-S02	CONNECTOR	2 pin

7.3 TALLY board assembly list $\boxed{0}\boxed{3}$

$\boxed{0}\boxed{3}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
LC1	SCV1984-001	EMI FILTER	
LC2	SCV1984-001	EMI FILTER	
LC3	SCV1984-001	EMI FILTER	
LC4	SCV1984-001	EMI FILTER	
LC5	SCV1984-001	EMI FILTER	
LC6	SCV1984-001	EMI FILTER	
LC7	SCV1984-001	EMI FILTER	
CN1	SCV1073-014	CONNECTOR	14 pin
TB2	SCV1607-007	TERMINAL BOARD	TALLY,GPI

7.4 RELAY board assembly list $\boxed{0}\boxed{4}$

$\boxed{0}\boxed{4}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
D1	MA165	DIODE	MATSUSHITA
RY1	SCV1940-012	POWER RELAY	
CN1	SM3490-003	CONNECTOR	
CN2	SSV1591-S02	CONNECTOR	

7.5 Y/C OUT board assembly list $\boxed{0}\boxed{5}$

$\boxed{0}\boxed{5}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
D1	HZS12JB2	ZENER DIODE	HITACHI
D2	HZS12JB2	ZENER DIODE	HITACHI
D3	HZS12JB2	ZENER DIODE	HITACHI
D4	HZS12JB2	ZENER DIODE	HITACHI

7.6 CC (Control CPU) board assembly list 06

06□□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	TMPZ84C015AF-6	I.C.(M)	
IC3	TC5564APL-15	I.C.(M)	TOSHIBA
IC4	PLSC1035-V□-□□	I.C.(M)	JVC,PROGRAM ROM
	Must be the same version as that of Program ROM (IC12) of SG/CPU board.		
IC6	UPD71055C	I.C.(M)	NEC
IC7	HA17012PC	I.C.(M)	HITACHI
IC8	SN74HC138N	I.C.(M)	TEXAS
IC9	SN74HC244N	I.C.(M)	TEXAS
IC10	SN74HC244N	I.C.(M)	TEXAS
IC11	SN74HC245N	I.C.(M)	TEXAS
IC12	SN74HC139N	I.C.(M)	TEXAS
IC13	TA78L005AP	I.C.(M)	TOSHIBA
IC14	SN74HC32N	I.C.(M)	TEXAS
IC15	UPD74HC04C	I.C.(M)	NEC
IC16	TC40H000P	I.C.(M)	TOSHIBA
IC17	HD26LS31P	I.C.(M)	HITACHI
IC18	HD26LS32P	I.C.(M)	HITACHI
IC19	MN1280(P.Q)	I.C.(M)	MATSUSHITA
IC20	RC4558DD	I.C.(M)	RAYTHEON
IC21	RC4558DD	I.C.(M)	RAYTHEON
IC22	AN6914	I.C.(M)	MATSUSHITA
IC23	UPD74HC161C	I.C.(M)	NEC
Q1	2SC1685(R)	TRANSISTOR	MATSUSHITA
D1	MA165	DIODE	MATSUSHITA
D2	MA165	DIODE	MATSUSHITA
D3	MA165	DIODE	MATSUSHITA
D4	MA165	DIODE	MATSUSHITA
D5	MA165	DIODE	MATSUSHITA
R1	QRD161J-105	CR	1.0M 1/6W
R2	QRD161J-102	CR	1.0K 1/6W
R3	QRD161J-101	CR	100 1/6W
R4	QRD161J-472	CR	4.7K 1/6W
R5	QRD161J-822	CR	8.2K 1/6W
R6	QRD161J-102	CR	1.0K 1/6W
R7	QRD161J-821	CR	820 1/6W
R8	QRD161J-331	CR	330 1/6W
R9	QRD161J-122	CR	1.2K 1/6W
R10	QRD161J-220	CR	22 1/6W
R11	QRD161J-101	CR	100 1/6W
R12	QRD161J-332	CR	3.3K 1/6W
R13	QRD161J-223	CR	22K 1/6W
R14	QRD161J-103	CR	10K 1/6W
R15	QRD161J-472	CR	4.7K 1/6W
R16	QRD161J-472	CR	4.7K 1/6W
R17	QRD161J-331	CR	330 1/6W
RA1	QRB081J-103	R.NETWORK	10K
RA2	QRB081J-103	R.NETWORK	10K
RA3	QRB041J-103	R.NETWORK	10K
RA4	QRB081J-103	R.NETWORK	10K
RA5	QRB081J-103	R.NETWORK	10K
RA6	QRB081J-103	R.NETWORK	10K
RA7	QRB081J-103	R.NETWORK	10K
RA8	QRB081J-103	R.NETWORK	10K
RA9	QRB041J-103	R.NETWORK	10K

Symbol No.	Part No.	Part Name	Description
C1	QCS11HJ-470	CER.CAPACITOR	47P 50V
C2	QCS11HJ-180	C CAP	18P 50V
C3	QCS11HJ-220	C CAP	22P 50V
C4	QCS11HJ-330	CER.CAPACITOR	33P 50V
C5	QER41CM-226	E CAP	22 16V
C6	QCZ0206-104	C CAP	0.10
C7	QETA1AM-227	E CAP	220 10V
C8	QETA1AM-227	E CAP	220 10V
C9	QER41CM-476	E CAP	47 16V
C10	QER41CM-476	E CAP	47 16V
C11	QER41CM-476	E CAP	47 16V
C12	QER41CM-476	E CAP	47 16V
C13	QCS11HJ-471	C CAP	470P 50V
C14	QCZ0206-104	C CAP	0.10
C15	QCZ0206-104	C CAP	0.10
C16	QER41CM-476	E CAP	47 16V
C17	QCZ0206-104	C CAP	0.10
C18	QCZ0206-104	C CAP	0.10
C19	QER41CM-476	E CAP	47 16V
C20	QCZ0206-104	C CAP	0.10
C21	QCZ0206-104	C CAP	0.10
C22	QER41CM-226	E CAP	22 16V
C23	QCS11HJ-220	C CAP	22P 50V
C24	QCZ0206-104	C CAP	0.10
C25	QCZ0206-104	C CAP	0.10
C26	SMV2209-104	EDL CAPACITOR	
C27	QCZ0206-104	C CAP	0.10
C28	QCS11HJ-101	CER.CAPACITOR	100P 50V
C29	QCZ0206-104	C CAP	0.10
C30	QCZ0206-104	C CAP	0.10
C31	QCZ0206-104	C CAP	0.10
C32	QCZ0206-104	C CAP	0.10
C33	QCZ0206-104	C CAP	0.10
C34	QCZ0206-104	C CAP	0.10
C35	QCZ0206-104	C CAP	0.10
C36	QCZ0206-104	C CAP	0.10
C37	QCZ0206-104	C CAP	0.10
C38	QCZ0206-104	C CAP	0.10
C39	QCZ0206-104	C CAP	0.10
C40	QCZ0206-104	C CAP	0.10
C41	QCZ0206-104	C CAP	0.10
C42	QCZ0206-104	C CAP	0.10
C43	QCZ0206-104	C CAP	0.10
C44	QCZ0206-104	C CAP	0.10
C45	QCZ0206-104	C CAP	0.10
L1	BL02RN2-R62	FERRITE BEAD	0.10
L2	BL02RN2-R62	FERRITE BEAD	0.10
L3	BL02RN2-R62	FERRITE BEAD	0.10
L4	BL02RN2-R62	FERRITE BEAD	0.10
L5	BL02RN2-R62	FERRITE BEAD	0.10
L6	BL02RN2-R62	FERRITE BEAD	0.10
L7	BL02RN2-R62	FERRITE BEAD	0.10
L8	BL02RN2-R62	FERRITE BEAD	0.10
LC1	EXC-EMT271BT	EMI FILTER	0.10
LC2	EXC-EMT271BT	EMI FILTER	0.10
LC3	EXC-EMT271BT	EMI FILTER	0.10
LC4	EXC-EMT271BT	EMI FILTER	0.10

(CC)

Symbol No.	Part No.	Part Name	Description
LC5	EXC-EMT271BT	EMI FILTER	0.10
LC6	EXC-EMT271BT	EMI FILTER	0.10
LC7	EXC-EMT271BT	EMI FILTER	0.10
LC8	EXC-EMT271BT	EMI FILTER	0.10
LC9	EXC-EMT271BT	EMI FILTER	0.10
LC10	EXC-EMT271BT	EMI FILTER	0.10
LC11	EXC-EMT271BT	EMI FILTER	0.10
LC12	EXC-EMT271BT	EMI FILTER	0.10
LC13	EXC-EMT271BT	EMI FILTER	0.10
LC14	EXC-EMT271BT	EMI FILTER	0.10
LC15	EXC-EMT271BT	EMI FILTER	0.10
LC16	EXC-EMT271BT	EMI FILTER	0.10
LC17	EXC-EMT271BT	EMI FILTER	0.10
LC18	EXC-EMT271BT	EMI FILTER	0.10
LC19	EXC-EMT271BT	EMI FILTER	0.10
LC20	EXC-EMT271BT	EMI FILTER	0.10
LC21	EXC-EMT271BT	EMI FILTER	0.10
LC22	EXC-EMT271BT	EMI FILTER	0.10
LC23	EXC-EMT271BT	EMI FILTER	0.10
LC24	EXC-EMT271BT	EMI FILTER	0.10
X1	SSV0387	CRYSTAL	4.9152MHz
X2	SCV1398	CRYSTAL	8MHz
S1	SCV1639-001	PUSH SWITCH	HARD RESET
S2	SCV1131-001	DIP SWITCH	CPU MODE
CN1	SCV1749-034	CONNECTOR	34 pin
CN2	SCV1932-102	DSUB 15P SOCKET	TO MAIN UNIT
CN4	SM3490-006	CONNECTOR	6 pin

7.7 CTL board assembly list 07

07☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	UPD8279C-5	I.C.(M)	NEC
IC2	UPD71055C	I.C.(M)	NEC
IC3	UPD71055C	I.C.(M)	NEC
IC4	TC4028BP	I.C.(M)	TOSHIBA
IC5	TD62503P	I.C.(M)	TOSHIBA
IC6	TD62503P	I.C.(M)	TOSHIBA
IC7	TD62503P	I.C.(M)	TOSHIBA
IC8	TD62503P	I.C.(M)	TOSHIBA
IC9	TD62503P	I.C.(M)	TOSHIBA
IC10	TD62503P	I.C.(M)	TOSHIBA
IC11	SN74HC139N	I.C.(M)	TEXAS
IC12	SN74HC138N	I.C.(M)	TEXAS
IC13	RC4558DD	I.C.(M)	RAYTHEON
IC14	TC4051BP	I.C.(M)	TOSHIBA
IC15	TC4051BP	I.C.(M)	TOSHIBA
IC16	TC4051BP	I.C.(M)	TOSHIBA
IC17	RC4558DD	I.C.(M)	RAYTHEON
IC18	TD62503P	I.C.(M)	TOSHIBA
IC19	SN74HC238N	I.C.(M)	TEXAS
IC20	TD62503P	I.C.(M)	TOSHIBA
IC21	SN74HC238N	I.C.(M)	TEXAS
IC22	TD62503P	I.C.(M)	TOSHIBA
IC23	TA78L005AP	I.C.(M)	TOSHIBA
IC24	NJM78L06A	I.C.(M)	JRC
IC25	NJM79L06A	I.C.(M)	JRC
Q1	2SA684(R)	SI.TRANSISTOR	MATSUSHITA
Q2	2SA684(R)	SI.TRANSISTOR	MATSUSHITA
D1	MA165	DIODE	MATSUSHITA
D2	MA165	DIODE	MATSUSHITA
D3	MA165	DIODE	MATSUSHITA
D4	MA165	DIODE	MATSUSHITA
D5	MA165	DIODE	MATSUSHITA
D6	MA165	DIODE	MATSUSHITA
D7	MA165	DIODE	MATSUSHITA
D8	MA165	DIODE	MATSUSHITA
D9	MA165	DIODE	MATSUSHITA
D10	MA165	DIODE	MATSUSHITA
D11	MA165	DIODE	MATSUSHITA
D12	MA165	DIODE	MATSUSHITA
D13	MA165	DIODE	MATSUSHITA
D14	MA165	DIODE	MATSUSHITA
D16	MA165	DIODE	MATSUSHITA
D17	MA165	DIODE	MATSUSHITA
D18	MA165	DIODE	MATSUSHITA
D19	MA165	DIODE	MATSUSHITA
D20	MA165	DIODE	MATSUSHITA
D21	MA165	DIODE	MATSUSHITA
D22	MA165	DIODE	MATSUSHITA
D24	MA165	DIODE	MATSUSHITA
D25	MA165	DIODE	MATSUSHITA
D26	MA165	DIODE	MATSUSHITA
D27	MA165	DIODE	MATSUSHITA
D28	MA165	DIODE	MATSUSHITA
D29	MA165	DIODE	MATSUSHITA
D30	MA165	DIODE	MATSUSHITA
D31	MA165	DIODE	MATSUSHITA
D32	MA165	DIODE	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
D33	MA165	DIODE	MATSUSHITA
D34	MA165	DIODE	MATSUSHITA
D35	MA165	DIODE	MATSUSHITA
D36	MA165	DIODE	MATSUSHITA
D37	MA165	DIODE	MATSUSHITA
D38	MA165	DIODE	MATSUSHITA
D39	MA165	DIODE	MATSUSHITA
D40	MA165	DIODE	MATSUSHITA
D48	MA165	DIODE	MATSUSHITA
D49	MA165	DIODE	MATSUSHITA
D50	MA165	DIODE	MATSUSHITA
D51	MA165	DIODE	MATSUSHITA
D52	MA165	DIODE	MATSUSHITA
D53	MA165	DIODE	MATSUSHITA
D54	MA165	DIODE	MATSUSHITA
D100	MA165	DIODE	MATSUSHITA
R1	QRD161J-102	CR	1.0K 1/6W
R2	QRD161J-102	CR	1.0K 1/6W
R3	QRD161J-102	CR	1.0K 1/6W
R4	QRD161J-102	CR	1.0K 1/6W
R5	QRD161J-102	CR	1.0K 1/6W
R6	QRD161J-102	CR	1.0K 1/6W
R7	QRD161J-102	CR	1.0K 1/6W
R8	QRD161J-102	CR	1.0K 1/6W
R9	QRD161J-102	CR	1.0K 1/6W
R10	QRD161J-102	CR	1.0K 1/6W
R11	QRD161J-102	CR	1.0K 1/6W
R12	QRD161J-102	CR	1.0K 1/6W
R13	QRD161J-102	CR	1.0K 1/6W
R14	QRD161J-102	CR	1.0K 1/6W
R15	QRD161J-102	CR	1.0K 1/6W
R16	QRD161J-102	CR	1.0K 1/6W
R17	QRD161J-102	CR	1.0K 1/6W
R18	QRD161J-102	CR	1.0K 1/6W
R19	QRD161J-102	CR	1.0K 1/6W
R20	QRD161J-102	CR	1.0K 1/6W
R21	QRD161J-102	CR	1.0K 1/6W
R22	QRD161J-102	CR	1.0K 1/6W
R23	QRD161J-102	CR	1.0K 1/6W
R24	QRD161J-102	CR	1.0K 1/6W
R25	QRD161J-103	CR	10K 1/6W
R26	QRD161J-103	CR	10K 1/6W
R27	QRD161J-122	CR	1.2K 1/6W
R29	QRD161J-103	CR	10K 1/6W
R30	QRD161J-103	CR	10K 1/6W
R31	QRD161J-103	CR	10K 1/6W
R32	QRD161J-103	CR	10K 1/6W
R33	QRD161J-472	CR	4.7K 1/6W
R34	QRD161J-123	CR	12K 1/6W
R35	QRD161J-220	CR	22 1/6W
R36	QRD161J-472	CR	4.7K 1/6W
R37	QRD161J-123	CR	12K 1/6W
R38	QRD161J-220	CR	22 1/6W
VR1	SCV1554-103	VR	10K COLOR HUE
VR2	SCV1554-103	VR	10K COLOR SAT
VR3	SCV1554-103	VR	10K COLOR LUM
VR4	SCV1554-103	VR	10K KEY SLICE

Symbol No.	Part No.	Part Name	Description
VR5	SCV1554-103	VR	10K KEY SIZE
VR6	SCV1554-103	VR	10K TRANS.TIME
VR7	SCV1554-103	VR	10K DSK SLICE
VR8	SCV1554-103	VR	10K DSK LEVEL
VR9	SCV1554-103	VR	10K SOFTNESS
VR10	SCV1624-103	VR	10K PRESET HUE(U)
VR11	SCV1624-103	VR	10K PRESET SAT
VR12	SCV1624-103	VR	10K PRESET LUM
VR13	SCV1624-103	VR	10K PRESET STUP
VR14	SCV1554-103	VR	10K PAINT
VR15	SCV1554-103	VR	10K STROBE
VR16	SCV1554-103	VR	10K MOSAIC
VR18	SCV0293-001	JOYSTICK ASSY	POSITIONER
RA1	QRB081J-103	R.NETWORK	10K
RA2	QRB081J-103	R.NETWORK	10K
RA3	QRB081J-103	R.NETWORK	10K
C1	QER41CM-476	E CAP	47 16V
C2	QER41CM-476	E CAP	47 16V
C3	QER41CM-476	E CAP	47 16V
C4	QCZ0206-104	C CAP	0.10
C5	QCZ0206-104	C CAP	0.10
C6	QER41CM-476	E CAP	47 16V
C7	QCS11HJ-101	CER.CAPACITOR	100P 50V
C8	QCZ0206-104	C CAP	0.10
C9	QCZ0206-104	C CAP	0.10
C10	QCZ0206-104	C CAP	0.10
C11	QCZ0206-104	C CAP	0.10
C12	QCZ0206-104	C CAP	0.10
C13	QCZ0206-104	C CAP	0.10
C14	QCZ0206-104	C CAP	0.10
C15	QCZ0206-104	C CAP	0.10
C16	QCZ0206-104	C CAP	0.10
C17	QCZ0206-104	C CAP	0.10
C18	QCZ0206-104	C CAP	0.10
C19	QCZ0206-104	C CAP	0.10
C20	QCZ0206-104	C CAP	0.10
C21	QCZ0206-104	C CAP	0.10
C22	QCZ0206-104	C CAP	0.10
C23	QCZ0206-104	C CAP	0.10
C24	QCZ0206-104	C CAP	0.10
C25	QCZ0206-104	C CAP	0.10
C26	QCZ0206-104	C CAP	0.10
C27	QCZ0206-104	C CAP	0.10
C28	QCZ0206-104	C CAP	0.10
C29	QCZ0206-104	C CAP	0.10
C30	QCZ0206-104	C CAP	0.10
C31	QER41CM-476	E CAP	47 16V
C32	QER41CM-476	E CAP	47 16V
C33	QCZ0206-104	C CAP	0.10
C34	QER41CM-476	E CAP	47 16V
C35	QER41CM-476	E CAP	47 16V
C36	QCZ0206-104	C CAP	0.10
C37	QFN41HJ-333	MY CAP	0.033 50V
C38	QFN41HJ-333	MY CAP	0.033 50V
SW1	SCV0292-150	PUSH SWITCH	PRESET/KEY 1

(CTL)

Symbol No.	Part No.	Part Name	Description
SW2	SCV0292-150	PUSH SWITCH	PRESET/KEY 2
SW3	SCV0292-150	PUSH SWITCH	PRESET/KEY 3
SW4	SCV0292-150	PUSH SWITCH	PRESET/KEY 4
SW5	SCV0292-100	PUSH SWITCH	B.COL/COL.BARS
SW6	SCV0292-100	PUSH SWITCH	BACKCOLOR
SW7	SCV0292-100	PUSH SWITCH	DSK COLOR
SW11	SCV0292-150	PUSH SWITCH	KEY
SW12	SCV0292-150	PUSH SWITCH	LUM
SW13	SCV0292-150	PUSH SWITCH	CHROMA
SW14	SCV0292-150	PUSH SWITCH	PATTERN
SW21	SCV0292-100	PUSH SWITCH	EFFECTS TIME
SW22	SCV0292-100	PUSH SWITCH	DSK TIME
SW24	SCV0292-100	PUSH SWITCH	DSK AUTO
SW25	SCV0292-100	PUSH SWITCH	MASK
SW26	SCV0292-100	PUSH SWITCH	INVERT
SW27	SCV0292-100	PUSH SWITCH	DSK PVW
SW28	SCV0292-100	PUSH SWITCH	DSK SOURCE
SW29	SCV0292-100	PUSH SWITCH	DSK FILL VIDEO
SW30	SCV0292-100	PUSH SWITCH	POSITIONER ON
SW31	SCV0292-100	PUSH SWITCH	REVERSE
SW32	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW33	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW34	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW35	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW36	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW37	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW38	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW39	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW40	SCV0292-100	PUSH SWITCH	WIPE SELECT
SW48	SCV0292-100	PUSH SWITCH	PAINT Y
SW49	SCV0292-100	PUSH SWITCH	PAINT C
SW50	SCV0292-100	PUSH SWITCH	NEGA
SW51	SCV0292-100	PUSH SWITCH	STROBE
SW52	SCV0292-100	PUSH SWITCH	MOSAIC
SW53	SCV0292-100	PUSH SWITCH	COMPRESS
SW54	SCV0292-100	PUSH SWITCH	SLIDE
SW100	SCV0292-150	PUSH SWITCH	PRESET/KEY COL.
S8	SCV0292-140	PUSH SWITCH	EFFECT AUTO
S9	SCV0292-140	PUSH SWITCH	MIX
S10	SCV0292-140	PUSH SWITCH	WIPE
S16	SCV0292-140	PUSH SWITCH	PROGRAM COLOR
S17	SCV0292-140	PUSH SWITCH	PROGRAM 1
S18	SCV0292-140	PUSH SWITCH	PROGRAM 2
S19	SCV0292-140	PUSH SWITCH	PROGRAM 3
S20	SCV0292-140	PUSH SWITCH	PROGRAM 4
CN6	SC42462-034	CONNECTOR	34 pin
CN9	SSV1283-003	CONNECTOR	3 pin

7.8 VIDEO board assembly list 08

08□□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	TC4051BP	I.C.(M)	TOSHIBA
IC2	TC4051BP	I.C.(M)	TOSHIBA
IC3	TC4051BP	I.C.(M)	TOSHIBA
IC4	TC4051BP	I.C.(M)	TOSHIBA
IC5	NJM082D	I.C.(M)	JRC
IC6	TA7347P	I.C.(M)	TOSHIBA
IC7	TA7347P	I.C.(M)	TOSHIBA
IC11	ICM7555IPA	I.C.(M)	TOSHIBA
IC12	TC40H193P	I.C.(M)	TOSHIBA
IC13	SCV0592-001	I.C.(H)	JVC
IC14	SCV0270-001	I.C.(H)	JVC
IC15	TC4053BP	I.C.(M)	TOSHIBA
IC16	NJM082D	I.C.(M)	JRC
IC17	TC4053BP	I.C.(M)	TOSHIBA
IC18	AN614	I.C.(M)	MATSUSHITA
IC19	AN614	I.C.(M)	MATSUSHITA
IC20	TC4053BP	I.C.(M)	TOSHIBA (E)
IC21	UPD74HC123AC	I.C.(M)	NEC (E)
IC22	TC4053BP	I.C.(M)	TOSHIBA
IC23	AN614	I.C.(M)	MATSUSHITA (E)
IC24	UPD74HC74C	I.C.(M)	NEC (E)
IC25	TA78L005AP	I.C.(M)	TOSHIBA
IC26	NJM7809FA	I.C.(M)	JRC
IC27	NJM79M09FA	I.C.(M)	JRC
IC28	TC40H004P	I.C.(M)	TOSHIBA
IC29	TC40H004P	I.C.(M)	TOSHIBA
IC32	MC1733CP	I.C.(H)	MOTROLA
IC33	MC1733CP	I.C.(H)	MOTROLA
IC34	NJM082D	I.C.(M)	JRC
IC35	NJM319D	I.C.(M)	JRC
IC36	NJM082D	I.C.(M)	JRC
IC37	NJM319D	I.C.(M)	JRC
IC38	TC4051BP	I.C.(M)	TOSHIBA
IC39	TC4051BP	I.C.(M)	TOSHIBA
IC40	M5278L09	I.C.(M)	MITSUBISHI
Q3	2SA564(R)	TRANSISTOR	MATSUSHITA
Q4	2SK163(M.N)	FET	NEC
Q5	2SK163(M.N)	FET	NEC
Q6	2SK163(M.N)	FET	NEC
Q7	2SK163(M.N)	FET	NEC
Q9	2SK163(M.N)	FET	NEC
Q10	2SK163(M.N)	FET	NEC
Q11	2SK163(M.N)	FET	NEC
Q12	2SK163(M.N)	FET	NEC
Q18	2SA564(R)	TRANSISTOR	MATSUSHITA
Q19	2SK163(M.N)	FET	NEC
Q20	2SK163(M.N)	FET	NEC
Q21	2SK163(M.N)	FET	NEC
Q22	2SK163(M.N)	FET	NEC
Q23	2SK163(M.N)	FET	NEC
Q24	2SK163(M.N)	FET	NEC
Q25	2SK163(M.N)	FET	NEC
Q26	2SK163(M.N)	FET	NEC
Q30	2SA564(R)	TRANSISTOR	MATSUSHITA
Q31	2SA564(R)	TRANSISTOR	MATSUSHITA
Q32	2SA564(R)	TRANSISTOR	MATSUSHITA (E)
Q33	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q34	2SC1685(R)	TRANSISTOR	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
Q35	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q36	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q37	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q38	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q39	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q40	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q41	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q42	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q43	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q44	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q45	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q46	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q47	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q48	2SK163(M.N)	FET	NEC
Q49	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q50	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q51	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q52	2SK163(M.N)	FET	NEC
Q53	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q54	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q55	2SA564(R)	TRANSISTOR	MATSUSHITA
Q56	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q57	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q58	2SC829(C)	TRANSISTOR	MATSUSHITA
Q59	2SC829(C)	TRANSISTOR	MATSUSHITA
Q60	2SC829(C)	TRANSISTOR	MATSUSHITA
Q61	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q62	2SC829(C)	TRANSISTOR	MATSUSHITA
Q63	2SC829(C)	TRANSISTOR	MATSUSHITA
Q64	2SC829(C)	TRANSISTOR	MATSUSHITA
Q65	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q66	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q67	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q68	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q69	DTC124ES	DTL.TRANSISTOR	ROHM (E)
Q70	2SA564(R)	TRANSISTOR	MATSUSHITA (E)
Q71	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q72	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q73	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
Q75	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q76	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q77	2SA564(R)	TRANSISTOR	MATSUSHITA
Q78	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q80	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q81	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q82	2SA564(R)	TRANSISTOR	MATSUSHITA
Q83	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q85	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q86	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q90	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q91	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q92	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q93	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q94	2SA564(R)	TRANSISTOR	MATSUSHITA
Q95	2SA564(R)	TRANSISTOR	MATSUSHITA
Q97	2SA564(R)	TRANSISTOR	MATSUSHITA
Q98	2SC1685(R)	TRANSISTOR	MATSUSHITA
D5	HZS9C2LTD	ZENER DIODE	HITACHI

Symbol No.	Part No.	Part Name	Description
D6	HZS9C2LTD	ZENER DIODE	HITACHI
D8	HZS9C2LTD	ZENER DIODE	HITACHI
D9	HZS9C2LTD	ZENER DIODE	HITACHI
D11	HZS9C2LTD	ZENER DIODE	HITACHI
D12	HZS9C2LTD	ZENER DIODE	HITACHI
D14	HZS9C2LTD	ZENER DIODE	HITACHI
D15	HZS9C2LTD	ZENER DIODE	HITACHI
D20	MA165	DIODE	MATSUSHITA (E)
D21	MA165	DIODE	MATSUSHITA (E)
D22	MA165	DIODE	MATSUSHITA (E)
R1	QRD161J-103	CR	10K 1/6W
R2	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R4	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R6	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R8	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R10	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R12	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R14	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R16	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R19	QRD161J-103	CR	10K 1/6W
R20	QRD161J-103	CR	10K 1/6W
R21	QRD161J-103	CR	10K 1/6W
R22	QRD161J-103	CR	10K 1/6W
R23	QRD161J-103	CR	10K 1/6W
R24	QRD161J-103	CR	10K 1/6W
R25	QRD161J-221	CR	220 1/6W
R26	QRD161J-221	CR	220 1/6W
R29	QRD161J-473	CR	47K 1/6W
R30	QRD161J-473	CR	47K 1/6W
R35	QRD161J-183	CR	18K 1/6W
R36	QRD161J-273	CR	27K 1/6W
R37	QRD161J-222	CR	2.2K 1/6W
R38	QVPB613-103	TRIM.RESISTOR	10K DIF 1
R39	QRD161J-223	CR	22K 1/6W
R40	QRD161J-223	CR	22K 1/6W
R41	QRD161J-330	CR	33 1/6W
R42	QRD161J-330	CR	33 1/6W
R43	QRD161J-472	CR	4.7K 1/6W
R44	QVPB613-102	TRIM.RESISTOR	1K Y PST PED
R45	QRD161J-221	CR	220 1/6W
R46	QVPB613-201	TRIM.VESISTOR	200 Y PGM GAIN1
R47	QRD161J-271	CR	270 1/6W
R48	QRD161J-221	CR	220 1/6W
R49	QVPB613-201	TRIM.VESISTOR	200 Y PST GAIN1
R50	QRD161J-271	CR	270 1/6W
R51	QVPB613-103	TRIM.RESISTOR	10K DIF3
R53	QRD161J-223	CR	22K 1/6W
R54	QRD161J-223	CR	22K 1/6W
R55	QRD161J-330	CR	33 1/6W
R56	QRD161J-330	CR	33 1/6W
R57	QRD161J-472	CR	4.7K 1/6W
R58	QVPB613-102	TRIM.RESISTOR	1K Y PVW PED
R59	QRD161J-221	CR	220 1/6W
R60	QVPB613-201	TRIM.VESISTOR	200 Y PVW GAIN1
R61	QRD161J-271	CR	270 1/6W
R62	QRD161J-221	CR	220 1/6W
R63	QVPB613-201	TRIM.VESISTOR	200 Y PST GAIN2
R64	QRD161J-271	CR	270 1/6W

(VIDEO)

Symbol No.	Part No.	Part Name	Description
R65	QVPB613-103	TRIM.RESISTOR	10K DIF2
R66	QRD161J-223	CR	22K 1/6W
R67	QRD161J-223	CR	22K 1/6W
R68	QRD161J-330	CR	33 1/6W
R69	QRD161J-330	CR	33 1/6W
R70	QRD161J-472	CR	4.7K 1/6W
R71	QVPB613-102	TRIM.RESISTOR	1K Y DSK PED
R73	QRD161J-221	CR	220 1/6W
R74	QVPB613-201	TRIM.VESISTOR	200 Y PGM GAIN2
R75	QRD161J-271	CR	270 1/6W
R76	QRD161J-221	CR	220 1/6W
R77	QVPB613-201	TRIM.VESISTOR	200 Y DSK GAIN
R78	QRD161J-271	CR	270 1/6W
R79	QVPB613-103	TRIM.RESISTOR	10K DIF 4
R80	QRD161J-223	CR	22K 1/6W
R81	QRD161J-223	CR	22K 1/6W
R82	QRD161J-330	CR	33 1/6W
R83	QRD161J-330	CR	33 1/6W
R84	QRD161J-472	CR	4.7K 1/6W
R85	QVPB613-102	TRIM.RESISTOR	1K Y DKPV PED
R86	QRD161J-221	CR	220 1/6W
R87	QVPB613-201	TRIM.VESISTOR	200 Y PVW GAIN2
R88	QRD161J-271	CR	270 1/6W
R89	QRD161J-221	CR	220 1/6W
R90	QVPB613-201	TRIM.VESISTOR	200 Y DKPV GAIN
R91	QRD161J-271	CR	270 1/6W
R96	QRD161J-104	CR	100K 1/6W
R97	QRD161J-224	CR	220K 1/6W
R98	QRD161J-221	CR	220 1/6W
R100	QRD161J-473	CR	47K 1/6W
R101	QRD161J-473	CR	47K 1/6W
R107	QVPB613-501	TRIM.RESISTOR	500 PST PHASE
R108	QRD161J-153	CR	15K 1/6W
R109	QRD161J-273	CR	27K 1/6W
R110	QRD161J-222	CR	2.2K 1/6W
R111	QVPB613-103	TRIM.RESISTOR	10K DIF5
R112	QRD161J-223	CR	22K 1/6W
R113	QRD161J-223	CR	22K 1/6W
R114	QRD161J-330	CR	33 1/6W
R115	QRD161J-330	CR	33 1/6W
R116	QRD161J-472	CR	4.7K 1/6W
R117	QVPB613-102	TRIM.RESISTOR	1K C PST PED
R118	QRD161J-221	CR	220 1/6W
R119	QVPB613-201	TRIM.VESISTOR	200 C PGM GAIN1
R120	QRD161J-271	CR	270 1/6W
R121	QRD161J-221	CR	220 1/6W
R122	QVPB613-201	TRIM.VESISTOR	200 C PST GAIN1
R123	QRD161J-271	CR	270 1/6W
R124	QVPB613-103	TRIM.RESISTOR	10K DIF7
R126	QRD161J-223	CR	22K 1/6W
R127	QRD161J-223	CR	22K 1/6W
R128	QRD161J-330	CR	33 1/6W
R129	QRD161J-330	CR	33 1/6W
R130	QRD161J-472	CR	4.7K 1/6W
R131	QVPB613-102	TRIM.RESISTOR	1K C PVW PED
R132	QRD161J-221	CR	220 1/6W
R133	QVPB613-201	TRIM.VESISTOR	200 C PVW GAIN1
R134	QRD161J-271	CR	270 1/6W
R135	QRD161J-221	CR	220 1/6W

Symbol No.	Part No.	Part Name	Description
R136	QVPB613-201	TRIM.VESISTOR	200 C PST GAIN2
R137	QRD161J-271	CR	270 1/6W
R138	QVPB613-103	TRIM.RESISTOR	10K DIF6
R139	QRD161J-223	CR	22K 1/6W
R140	QRD161J-223	CR	22K 1/6W
R141	QRD161J-330	CR	33 1/6W
R142	QRD161J-330	CR	33 1/6W
R143	QRD161J-472	CR	4.7K 1/6W
R144	QVPB613-102	TRIM.RESISTOR	1K C DSK PED
R145	QRD161J-221	CR	220 1/6W
R146	QVPB613-201	TRIM.VESISTOR	200 C PGM GAIN2
R147	QRD161J-271	CR	270 1/6W
R148	QRD161J-221	CR	220 1/6W
R149	QVPB613-201	TRIM.VESISTOR	200 C DSK GAIN
R150	QRD161J-271	CR	270 1/6W
R151	QVPB613-103	TRIM.RESISTOR	10K DIF8
R153	QRD161J-223	CR	22K 1/6W
R154	QRD161J-223	CR	22K 1/6W
R155	QRD161J-330	CR	33 1/6W
R156	QRD161J-330	CR	33 1/6W
R157	QRD161J-472	CR	4.7K 1/6W
R158	QVPB613-102	TRIM.RESISTOR	1K C DKPV PED
R159	QRD161J-221	CR	220 1/6W
R160	QVPB613-201	TRIM.VESISTOR	200 C PVW GAIN2
R161	QRD161J-271	CR	270 1/6W
R162	QRD161J-221	CR	220 1/6W
R163	QVPB613-201	TRIM.VESISTOR	200 C DKPV GAIN
R164	QRD161J-271	CR	270 1/6W
R165	QRD161J-104	CR	100K 1/6W
R166	QRD161J-224	CR	220K 1/6W
R174	QRD161J-221	CR	220 1/6W
R175	QRD161J-221	CR	220 1/6W
R181	QRD161J-103	CR	10K 1/6W
R182	QRD161J-222	CR	2.2K 1/6W
R183	QRD161J-332	CR	3.3K 1/6W
R184	QRD161J-333	CR	33K 1/6W
R185	QRD161J-102	CR	1.0K 1/6W
R186	QRD161J-103	CR	10K 1/6W (E)
R187	QRD161J-332	CR	3.3K 1/6W (E)
R188	QRD161J-153	CR	15K 1/6W (E)
R189	QRD161J-823	CR	82K 1/6W (E)
R190	QRD161J-102	CR	1.0K 1/6W
R191	QRD161J-222	CR	2.2K 1/6W
R192	QRD161J-102	CR	1.0K 1/6W
R193	QRD161J-681	CR	680 1/6W
R194	QRD161J-273	CR	27K 1/6W
R195	QRD161J-153	CR	15K 1/6W
R196	QRD161J-821	CR	820 1/6W
R197	QVPB613-501	TRIM.RESISTOR	500 Y GAIN
R198	QRD161J-152	CR	1.5K 1/6W
R199	QRD161J-222	CR	2.2K 1/6W
R200	QRD161J-103	CR	10K 1/6W (U)
	QRD161J-682	CR	6.8K 1/6W (E)
R201	QRD161J-102	CR	1.0K 1/6W
R202	QRD161J-391	CR	390 1/6W
R203	QRD161J-822	CR	8.2K 1/6W
R204	QRD161J-122	CR	1.2K 1/6W
R205	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R206	QRD161J-822	CR	8.2K 1/6W

Symbol No.	Part No.	Part Name	Description
R207	QRD161J-122	CR	1.2K 1/6W
R208	QRD161J-102	CR	1.0K 1/6W
R209	QRD161J-473	CR	47K 1/6W
R210	QVPB613-103	TRIM.RESISTOR	10K PED ADJ
R211	QRD161J-183	CR	18K 1/6W
R212	QRD161J-472	CR	4.7K 1/6W
R213	QRD161J-472	CR	4.7K 1/6W
R214	QRD161J-472	CR	4.7K 1/6W
R215	QRD161J-473	CR	47K 1/6W
R216	QRD161J-473	CR	47K 1/6W
R217	QRD161J-681	CR	680 1/6W
R218	QRD161J-471	CR	470 1/6W
R219	QVPB613-502	TRIM.RESISTOR	5K SYNC GAIN
R220	QRD161J-102	CR	1.0K 1/6W
R221	QRD161J-471	CR	470 1/6W
R222	QRD161J-223	CR	22K 1/6W(U)
R223	QRD161J-333	CR	33K 1/6W
R224	QRD161J-273	CR	27K 1/6W
R225	QRD161J-471	CR	470 1/6W
R226	QRD161J-471	CR	470 1/6W
R227	QRD161J-222	CR	2.2K 1/6W
R228	QRD161J-222	CR	2.2K 1/6W
R229	QRD161J-222	CR	2.2K 1/6W
R230	QRD161J-472	CR	4.7K 1/6W
R231	QVPB613-501	TRIM.RESISTOR	500 C GAIN
R232	QRD161J-471	CR	470 1/6W
R233	QRD161J-273	CR	27K 1/6W
R234	QRD161J-273	CR	27K 1/6W
R235	QRD161J-102	CR	1K 1/6W
R236	QRD161J-102	CR	1K 1/6W
R237	QVPB613-202	TRIM.RESISTOR	2K SC PHASE
R238	QRD161J-102	CR	1K 1/6W
R239	QVPB613-501	TRIM.RESISTOR	500 QUADRATURE
R240	QRD161J-391	CR	390 1/6W(U)
	QRD161J-221	CR	220 1/6W(E)
R241	QRD161J-222	CR	2.2K 1/6W
R242	QRD161J-473	CR	47K 1/6W
R243	QRD161J-393	CR	39K 1/6W
R244	QRD161J-222	CR	2.2K 1/6W
R245	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R246	QRD161J-682	CR	6.8K 1/6W(U)
	QRD161J-222	CR	2.2K 1/6W(E)
R247	QRD161J-102	CR	1.0K 1/6W
R248	QRD161J-473	CR	47K 1/6W
R249	QRD161J-393	CR	39K 1/6W
R250	QRD161J-821	CR	820 1/6W
R251	QRD161J-222	CR	2.2K 1/6W
R252	QRD161J-105	CR	1.0M 1/6W
R253	QRD161J-223	CR	22K 1/6W
R254	QRD161J-473	CR	47K 1/6W
R255	QRD161J-393	CR	39K 1/6W
R256	QRD161J-222	CR	2.2K 1/6W
R257	QRD161J-102	CR	1.0K 1/6W
R258	QVPB613-501	TRIM.RESISTOR	500 R-Y GAIN
R259	QVPB613-203	VR	20K BURST PHASE
R260	QRD161J-222	CR	2.2K 1/6W(E)
R261	QRD161J-332	CR	3.3K 1/6W
R262	QVPB613-203	VR	20K BURST LEVEL
R263	QRD161J-332	CR	3.3K 1/6W

Symbol No.	Part No.	Part Name	Description
R264	QRD161J-102	CR	1.0K 1/6W
R265	QRD161J-473	CR	47K 1/6W
R266	QRD161J-393	CR	39K 1/6W
R267	QRD161J-821	CR	820 1/6W
R268	QRD161J-222	CR	2.2K 1/6W
R269	QRD161J-105	CR	1.0M 1/6W
R270	QRD161J-223	CR	22K 1/6W
R271	QRD161J-220	CR	22 1/6W(U)
	QRD161J-270	CR	27 1/6W(E)
R272	QVPB613-102	TRIM.RESISTOR	1K C.BAL
R273	QRD161J-220	CR	22 1/6W(U)
	QRD161J-270	CR	27 1/6W(E)
R274	QRD161J-392	CR	3.9K 1/6W
R275	QRD161J-222	CR	2.2K 1/6W
R276	QVPB613-102	TRIM.RESISTOR	1K C.BAL
R277	QVPB613-102	TRIM.RESISTOR	1K C.BAL(E)
R278	QRD161J-0R0	CR	0 1/6W(U)
R279	QRD161J-153	CR	15K 1/6W(E)
R280	QRD161J-0R0	CR	0 1/6W(U)
R281	QVPB613-203	VR	20K P.POS(E)
R282	QRD161J-103	CR	10K 1/6W(E)
R283	QVPB613-203	VR	20K P.WIDE(E)
R284	QRD161J-103	CR	10K 1/6W(E)
R285	QRD161J-273	CR	27K 1/6W(E)
R286	QRD161J-273	CR	27K 1/6W(E)
R287	QRD161J-102	CR	1.0K 1/6W(E)
R288	QRD161J-102	CR	1.0K 1/6W(E)
R289	QVPB613-102	TRIM.RESISTOR	1.0K C.BAL(E)
R290	QRD161J-222	CR	2.2K 1/6W(E)
R291	QRD161J-103	CR	10K 1/6W(E)
R292	QVPB613-102	TRIM.RESISTOR	1.0K PB LEVEL(E)
R293	QRD161J-391	CR	390 1/6W(E)
R294	QRD161J-102	CR	1.0K 1/6W(E)
R295	QVPB613-102	TRIM.RESISTOR	1.0K 924 LEVEL(E)
R296	QRD161J-152	CR	1.5K 1/6W(E)
R297	QRD161J-103	CR	10K 1/6W(E)
R298	QRD161J-103	CR	10K 1/6W(E)
R299	QRD161J-152	CR	1.5K 1/6W(E)
R300	QRD161J-681	CR	680 1/6W(E)
R301	QRD161J-103	CR	10K 1/6W(E)
R302	QVPB613-501	TRIM.RESISTOR	500 C.BAL(E)
R303	QRD161J-562	CR	5.6K 1/6W(E)
R304	QRD161J-103	CR	10K 1/6W(E)
R305	QRD161J-562	CR	5.6K 1/6W(E)
R306	QRD161J-102	CR	1.0K 1/6W(E)
R307	QRD161J-102	CR	1.0K 1/6W(E)
R308	QRD161J-681	CR	680 1/6W(E)
R309	QRD161J-681	CR	680 1/6W(E)
R310	QRD161J-471	CR	470 1/6W(E)
R311	QRD161J-473	CR	47K 1/6W(E)
R312	QRD161J-273	CR	27K 1/6W(E)
R313	QVPB613-102	TRIM.RESISTOR	1.0K 924 Y GAIN(E)
R314	QRD161J-471	CR	470 1/6W(E)
R315	QRD161J-153	CR	15K 1/6W
R316	QRD161J-823	CR	82K 1/6W
R317	QVPB613-102	TRIM.RESISTOR	1.0K PGM Y GAIN
R318	QRD161J-471	CR	470 1/6W
R319	QRD161J-102	CR	1.0K 1/6W
R320	QRD161J-102	CR	1.0K 1/6W
R321	QRD161J-393	CR	39K 1/6W

(VIDEO)

Symbol No.	Part No.	Part Name	Description
R322	QRD161J-473	CR	47K 1/6W
R323	QRD161J-102	CR	1.0K 1/6W
R324	QRD161J-394	CR	390K 1/6W
R325	QRD161J-473	CR	47K 1/6W
R326	QRD161J-822	CR	8.2K 1/6W
R327	QRD161J-472	CR	4.7K 1/6W
R328	QRD161J-471	CR	470 1/6W
R329	QVPB613-102	TRIM.RESISTOR	1.0K PGM GAIN
R330	QRD161J-102	CR	1.0K 1/6W
R331	QRD161J-472	CR	4.7K 1/6W
R332	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R333	QVPB613-102	TRIM.RESISTOR	1.0K PVW Y GAIN
R334	QRD161J-471	CR	470 1/6W
R335	QRD161J-102	CR	1.0K 1/6W
R336	QRD161J-102	CR	1.0K 1/6W
R337	QRD161J-393	CR	39K 1/6W
R338	QRD161J-473	CR	47K 1/6W
R339	QRD161J-102	CR	1.0K 1/6W
R340	QRD161J-394	CR	390K 1/6W
R341	QRD161J-473	CR	47K 1/6W
R342	QRD161J-472	CR	4.7K 1/6W
R343	QRD161J-822	CR	8.2K 1/6W
R344	QRD161J-471	CR	470 1/6W
R345	QVPB613-102	TRIM.RESISTOR	1.0K PVW GAIN
R346	QRD161J-102	CR	1.0K 1/6W
R347	QRD161J-472	CR	4.7K 1/6W
R348	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R349	QRD161J-394	CR	390K 1/6W
R350	QRD161J-473	CR	47K 1/6W
R351	QRD161J-394	CR	390K 1/6W
R352	QRD161J-473	CR	47K 1/6W
R353	QRD161J-394	CR	390K 1/6W
R354	QRD161J-473	CR	47K 1/6W
R357	QRD161J-333	CR	33K 1/6W(E)
R358	QRD161J-472	CR	4.7K 1/6W(E)
R359	QRD161J-103	CR	10K 1/6W(E)
R360	QRD161J-274	CR	270K 1/6W(E)
R361	QRD161J-681	CR	680 1/6W(E)
R362	QRD161J-681	CR	680 1/6W(E)
R363	QRD161J-824	CR	820K 1/6W(E)
R364	QRD161J-153	CR	15K 1/6W(E)
R365	QRD161J-223	CR	22K 1/6W(E)
R366	QRD161J-103	CR	10K 1/6W(E)
R367	QRD161J-103	CR	10K 1/6W(E)
R368	QRD161J-103	CR	10K 1/6W(E)
R369	QRD161J-561	CR	560 1/6W(E)
R370	QRD161J-222	CR	2.2K 1/6W(E)
R371	QRD161J-561	CR	560 1/6W(E)
R372	QVPB613-501	TRIM.RESISTOR	500 5.36 LEVEL(E)
R373	QRD161J-221	CR	220 1/6W(E)
R380	QRD161J-270	CR	27 1/6W
R381	QRD161J-470	CR	47 1/6W
R382	QRD161J-103	CR	10K 1/6W
R383	QRD161J-103	CR	10K 1/6W
R384	QRD161J-103	CR	10K 1/6W
R385	QRD161J-222	CR	2.2K 1/6W
R386	QRD161J-103	CR	10K 1/6W
R387	QRD161J-472	CR	4.7K 1/6W
R388	QRD161J-103	CR	10K 1/6W
R389	QRD161J-472	CR	4.7K 1/6W

Symbol No.	Part No.	Part Name	Description
R390	QRD161J-472	CR	4.7K 1/6W
R391	QRD161J-222	CR	2.2K 1/6W
R392	QRD161J-471	CR	470 1/6W
R393	QRD161J-473	CR	47K 1/6W(U)
R394	QRD161J-152	CR	1.5K 1/6W
R395	QRD161J-681	CR	680 1/6W
R396	QRD161J-821	CR	820 1/6W
R397	QRD161J-472	CR	4.7K 1/6W
R399	QRD161J-682	CR	6.8K 1/6W
R401	QRD161J-682	CR	6.8K 1/6W
R402	QRD161J-104	CR	100K 1/6W
R403	QRD161J-104	CR	100K 1/6W
R404	QRD161J-222	CR	2.2K 1/6W
R405	QVPB613-502	TRIM.RESISTOR	5K PGM DOC SENS
R406	QRD161J-0R0	CR	0 1/6W
R407	QRD161J-103	CR	10K 1/6W
R408	QRD161J-223	CR	22K 1/6W
R409	QRD161J-471	CR	470 1/6W
R410	QRD161J-473	CR	47K 1/6W(U)
R415	QRD161J-270	CR	27 1/6W
R416	QRD161J-470	CR	47 1/6W
R417	QRD161J-103	CR	10K 1/6W
R418	QRD161J-103	CR	10K 1/6W
R419	QRD161J-103	CR	10K 1/6W
R420	QRD161J-222	CR	2.2K 1/6W
R421	QRD161J-103	CR	10K 1/6W
R422	QRD161J-472	CR	4.7K 1/6W
R423	QRD161J-103	CR	10K 1/6W
R424	QRD161J-472	CR	4.7K 1/6W
R425	QRD161J-472	CR	4.7K 1/6W
R426	QRD161J-222	CR	2.2K 1/6W
R427	QRD161J-471	CR	470 1/6W
R428	QRD161J-473	CR	47K 1/6W(U)
R429	QRD161J-152	CR	1.5K 1/6W
R430	QRD161J-681	CR	680 1/6W
R431	QRD161J-821	CR	820 1/6W
R432	QRD161J-472	CR	4.7K 1/6W
R435	QRD161J-682	CR	6.8K 1/6W
R436	QRD161J-682	CR	6.8K 1/6W
R438	QRD161J-104	CR	100K 1/6W
R439	QRD161J-104	CR	100K 1/6W
R440	QRD161J-222	CR	2.2K 1/6W
R441	QVPB613-502	TRIM.RESISTOR	5K PST DOC SENS
R442	QRD161J-0R0	CR	0 1/6W
R443	QRD161J-103	CR	10K 1/6W
R444	QRD161J-223	CR	22K 1/6W
R445	QRD161J-471	CR	470 1/6W
R446	QRD161J-473	CR	47K 1/6W(U)
R457	QRD161J-221	CR	220 1/6W
R458	QRD161J-221	CR	220 1/6W
R460	QRD161J-471	CR	470 1/6W
R461	QVPB613-102	TRIM.RESISTOR	1K Y PVW GAIN
R462	QRD161J-0R0	CR	0 1/6W
R464	QRD161J-471	CR	470 1/6W
R465	QVPB613-102	TRIM.RESISTOR	1K C PVW GAIN
R466	QRD161J-472	CR	4.7K 1/6W
R467	QRD161J-270	CR	27 1/6W(E)
R500	QRD161J-104	CR	100K 1/6W
R501	QRD161J-0R0	CR	0 1/6W
R502	QRD161J-0R0	CR	0 1/6W

Symbol No.	Part No.	Part Name	Description
R505	QRD161J-222	CR	2.2K 1/6W
R506	QRD161J-222	CR	2.2K 1/6W
R507	QRD161J-222	CR	2.2K 1/6W
R508	QRD161J-222	CR	2.2K 1/6W
R509	QRD161J-103	CR	10K 1/6W
R510	QRD161J-103	CR	10K 1/6W
R512	QRD161J-103	CR	10K 1/6W
R513	QRD161J-472	CR	4.7K 1/6W
R516	QRD161J-221	CR	220 1/6W
R517	QRD161J-221	CR	220 1/6W
R518	QRD161J-471	CR	470 1/6W
R519	QRD161J-152	CR	1.5K 1/6W
C1	QER41CM-476	E CAP	47 16V
C2	QER41CM-106	E CAP	10 16V
C3	QER41CM-476	E CAP	47 16V
C4	QER41CM-106	E CAP	10 16V
C5	QER41CM-476	E CAP	47 16V
C6	QER41CM-106	E CAP	10 16V
C7	QER41CM-476	E CAP	47 16V
C8	QER41CM-106	E CAP	10 16V
C9	QER41CM-476	E CAP	47 16V
C10	QER41CM-106	E CAP	10 16V
C11	QER41CM-476	E CAP	47 16V
C12	QER41CM-106	E CAP	10 16V
C13	QER41CM-476	E CAP	47 16V
C14	QER41CM-106	E CAP	10 16V
C15	QER41CM-476	E CAP	47 16V
C16	QER41CM-106	E CAP	10 16V
C17	QER41CM-476	E CAP	47 16V
C18	QER41CM-106	E CAP	10 16V
C19	QER41CM-476	E CAP	47 16V
C20	QER41CM-106	E CAP	10 16V
C21	QCF11HP-103	CER.CAPACITOR	0.010 50V
C22	QCF11HP-103	CER.CAPACITOR	0.010 50V
C23	QER41CM-106	E CAP	10 16V
C24	QER41CM-106	E CAP	10 16V
C25	QEPA1CM-106	NP CAP	10 16V
C27	QCF11HP-103	CER.CAPACITOR	0.010 50V
C28	QEPA1CM-106	NP CAP	10 16V
C29	QEPA1CM-106	NP CAP	10 16V
C30	QCF11HP-103	CER.CAPACITOR	0.010 50V
C31	QER41CM-106	E CAP	10 16V
C32	QER41CM-106	E CAP	10 16V
C33	QER41CM-106	E CAP	10 16V
C34	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C35	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C36	QER41CM-106	E CAP	10 16V
C37	QER41CM-106	E CAP	10 16V
C38	QER41CM-106	E CAP	10 16V
C39	QEX41AM-106	E CAP	10 10V
C40	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C41	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C42	QER41CM-106	E CAP	10 16V
C43	QER41CM-106	E CAP	10 16V
C44	QER41CM-106	E CAP	10 16V
C45	QER41CM-106	E CAP	10 16V
C46	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C47	QEPA1HM-105	NP CAP	1.0 50V

Symbol No.	Part No.	Part Name	Description
C48	QER41CM-106	E CAP	10 16V
C49	QER41CM-106	E CAP	10 16V
C50	QER41CM-106	E CAP	10 16V
C51	QER41CM-106	E CAP	10 16V
C52	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C53	QEPA1HM-105	NP CAP	1.0 50V
C54	QER41CM-106	E CAP	10 16V
C55	QER41CM-106	E CAP	10 16V
C56	QER41CM-106	E CAP	10 16V
C60	QER41CM-106	E CAP	10 16V
C61	QCF11HP-103	CER.CAPACITOR	0.010 50V
C62	QCF11HP-103	CER.CAPACITOR	0.010 50V
C63	QER41CM-106	E CAP	10 16V
C64	QER41CM-106	E CAP	10 16V
C65	QEPA1CM-106	NP CAP	10 16V
C67	QCF11HP-103	CER.CAPACITOR	0.010 50V
C68	QEPA1CM-106	NP CAP	10 16V
C69	QEPA1CM-106	NP CAP	10 16V
C70	QCF11HP-103	CER.CAPACITOR	0.010 50V
C71	QER41CM-106	E CAP	10 16V
C72	QER41CM-106	E CAP	10 16V
C73	QER41CM-106	E CAP	10 16V
C74	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C75	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C76	QER41CM-106	E CAP	10 16V
C77	QER41CM-106	E CAP	10 16V
C78	QER41CM-106	E CAP	10 16V
C79	QER41CM-106	E CAP	10 16V
C80	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C81	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C82	QER41CM-106	E CAP	10 16V
C83	QER41CM-106	E CAP	10 16V
C84	QER41CM-106	E CAP	10 16V
C85	QER41CM-106	E CAP	10 16V
C86	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C87	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C88	QER41CM-106	E CAP	10 16V
C89	QER41CM-106	E CAP	10 16V
C90	QER41CM-106	E CAP	10 16V
C91	QER41CM-106	E CAP	10 16V
C92	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C93	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C94	QER41CM-106	E CAP	10 16V
C95	QER41CM-106	E CAP	10 16V
C96	QER41CM-106	E CAP	10 16V
C100	QER41CM-106	E CAP	10 16V
C101	QCF11HP-103	CER.CAPACITOR	0.010 50V
C102	QER41CM-476	E CAP	47 16V
C180	QCF11HP-103	CER.CAPACITOR	0.010 50V
C181	QER41CM-476	E CAP	47 16V
C182	QCT25CH-101	C CAP	100P 50V
C183	QCF11HP-103	CER.CAPACITOR	0.010 50V
C184	QCF11HP-103	CER.CAPACITOR	0.010 50V
C185	QCF11HP-103	CER.CAPACITOR	0.010 50V
C186	QER41CM-106	E CAP	10 16V
C187	QCS11HJ-470	CER.CAPACITOR	47P 50V
C188	QCS11HJ-470	CER.CAPACITOR	47P 50V
C189	QCS11HJ-180	C CAP	18P 50V
C190	QCS11HJ-180	C CAP	18P 50V

(VIDEO)

Symbol No.	Part No.	Part Name	Description	
C191	QER41CM-106	E CAP	10	16V
C192	QCS11HJ-680	C CAP	68P	50V
C193	QCS11HJ-330	CER.CAPACITOR	33P	50V
C194	QCF11HP-103	CER.CAPACITOR	0.010	50V
C195	QCF11HP-103	CER.CAPACITOR	0.010	50V
C196	QCF11HP-103	CER.CAPACITOR	0.010	50V
C197	QCF11HP-103	CER.CAPACITOR	0.010	50V
C198	QER41CM-106	E CAP	10	16V
C199	QEPA1CM-106	NP CAP	10	16V
C200	QER41CM-106	E CAP	10	16V
C201	QCT25UJ-390	C CAP	39P	50V
C202	QCT25UJ-820	C CAP	82P	50V
C203	QCT25UJ-101	C CAP	100P	50V
C204	QCT25UJ-151	C CAP	150P	50V
C205	QCS11HJ-391	C CAP	390P	50V
C206	QCS11HJ-820	C CAP	82P	50V (U)
	QCS11HJ-270	C CAP	27P	50V (E)
C207	QCS11HJ-560	C CAP	56P	50V
C208	QEPA1HM-105	NP CAP	1.0	50V
C209	QER41CM-106	E CAP	10	16V
C210	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C211	QCF11HP-103	CER.CAPACITOR	0.010	50V
C212	QCF11HP-103	CER.CAPACITOR	0.010	50V
C213	QCF11HP-103	CER.CAPACITOR	0.010	50V
C214	QCF11HP-103	CER.CAPACITOR	0.010	50V
C215	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C216	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C217	QEPA1HM-105	NP CAP	1.0	50V
C218	QCS11HJ-330	CER.CAPACITOR	33P	50V
C219	QER41CM-106	E CAP	10	16V
C220	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C221	QER41CM-106	E CAP	10	16V
C222	QCF11HP-103	CER.CAPACITOR	0.010	50V
C223	QCF11HP-103	CER.CAPACITOR	0.010	50V
C224	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C225	QCF11HP-103	CER.CAPACITOR	0.010	50V (U)
C226	QER41CM-476	E CAP	47	16V
C227	QCT25CH-101	C CAP	100P	50V (E)
C228	QCT25CH-221	C CAP	220P	50V (E)
C229	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V (E)
C230	QCT25CH-101	C CAP	100P	50V (E)
C231	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C232	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C233	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C234	QER41CM-106	E CAP	10	16V (E)
C235	QER41CM-106	E CAP	10	16V (E)
C236	QER41CM-106	E CAP	10	16V (E)
C237	QCF11HP-103	CER.CAPACITOR	0.010	50V
C238	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C239	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C240	QCS11HJ-470	CER.CAPACITOR	47P	50V (E)
C241	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C242	QCS11HJ-180	C CAP	18P	50V (E)
C243	QCS11HJ-820	C CAP	82P	50V (E)
C244	QCS11HJ-470	CER.CAPACITOR	47P	50V (E)
C245	QCS11HJ-270	C CAP	27P	50V (E)
C246	QER41CM-106	E CAP	10	16V (E)
C247	QER41CM-106	E CAP	10	16V
C248	QEPA1HM-105	NP CAP	1.0	50V

Symbol No.	Part No.	Part Name	Description	
C249	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C250	QEX41CM-156	E CAP	15	16V
C251	QER41CM-106	E CAP	10	16V
C252	QEPA1HM-105	NP CAP	1.0	50V
C253	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C254	QER41CM-106	E CAP	10	16V
C255	QER41CM-106	E CAP	10	16V
C256	QEPA1HM-105	NP CAP	1.0	50V
C257	QCS11HJ-180	C CAP	18P	50V
C258	QER41CM-106	E CAP	10	16V
C259	QER41CM-476	E CAP	47	16V
C260	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C261	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C263	QER41CM-106	E CAP	10	16V
C264	QER41CM-106	E CAP	10	16V
C265	QEPA0JM-476	NP CAP	47	6.3V
C266	QEX41CM-156	E CAP	15	16V
C267	QER41CM-106	E CAP	10	16V
C268	QEPA0JM-476	NP CAP	47	6.3V
C269	QEXA1CM-107	E CAP	100	16V
C270	QER41CM-106	E CAP	10	16V
C271	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C272	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C273	QER41CM-106	E CAP	10	16V
C274	QER41CM-106	E CAP	10	16V
C275	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C276	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C277	QER41CM-106	E CAP	10	16V
C278	QER41CM-106	E CAP	10	16V
C279	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C280	QCS11HJ-3R0	C CAP	3.0P	50V (U)
	QCS11HJ-4R0	C CAP	4.0P	50V (E)
C281	QER41CM-106	E CAP	10	16V
C282	QER41CM-476	E CAP	47	16V
C283	QER41CM-476	E CAP	47	16V
C284	QER41CM-476	E CAP	47	16V
C287	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C289	QER41CM-476	E CAP	47	16V
C290	QFN41HJ-103	MY CAP	0.010	50V (E)
C299	QCF11HP-103	CER.CAPACITOR	0.010	50V
C300	QER41CM-476	E CAP	47	16V
C301	QCF11HP-103	CER.CAPACITOR	0.010	50V
C302	QER41CM-476	E CAP	47	16V
C303	QCF11HP-103	CER.CAPACITOR	0.010	50V
C304	QER41CM-476	E CAP	47	16V
C305	QER41CM-476	E CAP	47	16V
C306	QER41CM-476	E CAP	47	16V
C307	QER41CM-476	E CAP	47	16V
C308	QER41CM-476	E CAP	47	16V
C309	QER41CM-476	E CAP	47	16V
C310	QCF11HP-103	CER.CAPACITOR	0.010	50V
C311	QER41CM-476	E CAP	47	16V
C312	QCF11HP-103	CER.CAPACITOR	0.010	50V
C313	QER41CM-476	E CAP	47	16V

Symbol No.	Part No.	Part Name	Description
C314	QER41CM-476	E CAP	47 16V
C315	QER41CM-476	E CAP	47 16V
C316	QER41CM-476	E CAP	47 16V
C317	QER41CM-476	E CAP	47 16V
C318	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C319	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C320	QCF11HP-103	CER.CAPACITOR	0.010 50V
C321	QCF11HP-103	CER.CAPACITOR	0.010 50V
C322	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C323	QCF11HP-103	CER.CAPACITOR	0.010 50V
C324	QCF11HP-103	CER.CAPACITOR	0.010 50V
C325	QCF11HP-103	CER.CAPACITOR	0.010 50V
C326	QCF11HP-103	CER.CAPACITOR	0.010 50V
C327	QCF11HP-103	CER.CAPACITOR	0.010 50V
C328	QER41CM-106	E CAP	10 16V (U)
	QER41CM-476	E CAP	47 16V (E)
C329	QCF11HP-103	CER.CAPACITOR	0.010 50V
C330	QCF11HP-103	CER.CAPACITOR	0.010 50V
C331	QETA1CM-107	E CAP	100 16V (E)
C332	QAT3120-200	TRIM.CAPACITOR	(E)
C333	QCT25CH-101	C CAP	100P 50V (E)
C334	QCT25CH-101	C CAP	100P 50V (E)
C335	QER41CM-476	E CAP	47 16V
C336	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C337	QCT25CH-390	C CAP	39P 50V
C338	QCT25UJ-151	C CAP	150P 50V (U)
	QCT25UJ-121	C CAP	120P 50V (E)
C340	QEPA1HM-105	NP CAP	1.0 50V
C341	QEPA1HM-105	NP CAP	1.0 50V
C342	QCF11HP-103	CER.CAPACITOR	0.010 50V
C343	QCS11HJ-680	C CAP	68P 50V
C344	QEPA1HM-105	NP CAP	1.0 50V
C345	QEPA1HM-105	NP CAP	1.0 50V
C346	QER41CM-106	E CAP	10 16V
C347	QCS11HJ-221	C CAP	220P 50V
C348	QCF11HP-103	CER.CAPACITOR	0.010 50V
C349	QER41HM-105	E CAP	1.0 50V
C350	QCF11HP-103	CER.CAPACITOR	0.010 50V
C351	QRD161J-0R0	CR	0 1/6W
C352	QCF11HP-103	CER.CAPACITOR	0.010 50V
C353	QCF11HP-103	CER.CAPACITOR	0.010 50V
C354	QEPA1HM-105	NP CAP	1.0 50V
C355	QEPA1HM-105	NP CAP	1.0 50V
C356	QCF11HP-103	CER.CAPACITOR	0.010 50V
C357	QCS11HJ-680	C CAP	68P 50V
C358	QEPA1HM-105	NP CAP	1.0 50V
C359	QEPA1HM-105	NP CAP	1.0 50V
C360	QER41CM-106	E CAP	10 16V
C361	QCS11HJ-221	C CAP	220P 50V
C362	QCF11HP-103	CER.CAPACITOR	0.010 50V
C363	QER41HM-105	E CAP	1.0 50V
C364	QCF11HP-103	CER.CAPACITOR	0.010 50V
C365	QRD161J-0R0	CR	0 1/6W
C366	QCF11HP-103	CER.CAPACITOR	0.010 50V
C367	QCF11HP-103	CER.CAPACITOR	0.010 50V
C368	QCF11HP-103	CER.CAPACITOR	0.010 50V
C369	QEPA1HM-105	NP CAP	1.0 50V
C370	QEPA1HM-105	NP CAP	1.0 50V
C371	QCF11HP-103	CER.CAPACITOR	0.010 50V

Symbol No.	Part No.	Part Name	Description
C372	QCF11HP-103	CER.CAPACITOR	0.010 50V
C373	QCF11HP-103	CER.CAPACITOR	0.010 50V
C374	QCF11HP-103	CER.CAPACITOR	0.010 50V
C375	QCF11HP-103	CER.CAPACITOR	0.010 50V
C400	QCF11HP-103	CER.CAPACITOR	0.010 50V
C500	QER41CM-106	E CAP	10 16V
C501	QEX41AM-106	E CAP	10 10V
C503	QEX41CM-156	E CAP	15 16V
L1	SCV0331-2R2	PEAKING COIL	2.2μH
L2	SCV0331-120	PEAKING COIL	12μH
L3	SCV0331-180	PEAKING COIL	18μH
L4	SCV0331-220	PEAKING COIL	22μH
L5	SCV0331-390	PEAKING COIL	39μH
L6	SCV0331-220	PEAKING COIL	22μH
L7	SCV0331-560	PEAKING COIL	56μH
L8	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)
L9	SCV0331-680	PEAKING COIL	68μH (E)
L10	SCV0331-680	PEAKING COIL	68μH (E)
DL1	SCV1827-001	DELAY LINE	68μH (E)
X1	SCV1523-001	CRYSTAL	5.36MHz (E)
CF1	SCV1525-001	CERAMIC FILTER	(E)
J1	SCV1147-001	CONNECTOR	924/443 (E)
J2	SCV1147-001	CONNECTOR	924/443 (E)
CN6	SCV1704-200	CONNECTOR	200 pin
CN16	SCV1929-100	CONNECTOR	100 pin

CBM1-10 CBMC4490-00A CROSS POINT CBM

Symbol No.	Part No.	Part Name	Description
Q1	2SA1256E4.5	SI.TRANSISTOR	SANYO
Q2	2SC2812L5.6	TRANSISTOR	SANYO
Q3	2SC2812L5.6	TRANSISTOR	SANYO
D1	MA152K	DIODE	MATSUSHITA
D2	MA152K	DIODE	MATSUSHITA
R1	NRSA02J-221	MGR	220 1/10W
R2	NRSA02J-473	MGR	47K 1/10W
R3	NRSA02J-473	MGR	47K 1/10W
R4	NRSA02J-222	MGR	2.2K 1/10W
R5	NRSA02J-471	MGR	470 1/10W
R6	NRSA02J-823	MGR	82K 1/10W
R7	NRSA02J-471	MGR	470 1/10W
R8	NRSA02J-823	MGR	82K 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V

(VIDEO)

Symbol No.	Part No.	Part Name	Description
CBM11-14 CBMC4491-00A BUFFER CBM			
Q1	2SC2814F4.5	TRANSISTOR	SANYO
Q2	2SC2814F4.5	TRANSISTOR	SANYO
Q3	2SA1256E4.5	SI.TRANSISTOR	SANYO
R1	NRSA02J-561	MGR	560 1/10W
R2	NRSA02J-273	MGR	27K 1/10W
R3	NRSA02J-103	MGR	10K 1/10W
R4	NRSA02J-222	MGR	2.2K 1/10W
R5	NRSA02J-471	MGR	470 1/10W
R6	NRSA02J-152	MGR	1.5K 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCS21HJ-330	C CAP	33P 50V
C3	NCT03CH-8R0	C CAP	8.0P 50V
C4	NCF21EZ-104	C CAP	0.10 25V
CBM15-22 CBMC4492-00A MULTI CBM			
IC1	RC1496M	IC	RAYTHEON
Q1	2SC2814F4.5	TRANSISTOR	SANYO
Q2	2SA1256E4.5	SI.TRANSISTOR	SANYO
Q3	2SC2814F4.5	TRANSISTOR	SANYO
Q4	2SC2814F4.5	TRANSISTOR	SANYO
Q5	2SA1256E4.5	SI.TRANSISTOR	SANYO
Q6	2SC2814F4.5	TRANSISTOR	SANYO
Q7	2SC2814F4.5	TRANSISTOR	SANYO
Q8	2SC2814F4.5	TRANSISTOR	SANYO
R1	NRSA02J-471	MGR	470 1/10W
R2	NRSA02J-472	MGR	4.7K 1/10W
R3	NRSA02J-824	MGR	820K 1/10W
R4	NRSA02J-123	MGR	12K 1/10W
R5	NRSA02J-221	MGR	220 1/10W
R6	NRSA02J-682	MGR	6.8K 1/10W
R7	NRSA02J-471	MGR	470 1/10W
R8	NRSA02J-472	MGR	4.7K 1/10W
R9	NRSA02J-824	MGR	820K 1/10W
R10	NRSA02J-123	MGR	12K 1/10W
R11	NRSA02J-221	MGR	220 1/10W
R12	NRSA02J-682	MGR	6.8K 1/10W
R13	NRSA02J-471	MGR	470 1/10W
R14	NRSA02J-471	MGR	470 1/10W
R15	NRSA02J-222	MGR	2.2K 1/10W
R16	NRSA02J-103	MGR	10K 1/10W
R17	NRSA02J-122	MGR	1.2K 1/10W
R18	NRSA02J-471	MGR	470 1/10W
R19	NRSA02J-221	MGR	220 1/10W
R20	NRSA02J-221	MGR	220 1/10W
R21	NRSA02J-272	MGR	2.7K 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V

Symbol No.	Part No.	Part Name	Description
C2	NCF21EZ-104	C CAP	0.10 25V
C3	NCF21EZ-104	C CAP	0.10 25V
CBM23,24,27,28 CBMC4489-00A VIDEO AMP CBM			
Q1	2SC2814F4.5	TRANSISTOR	SANYO
Q2	2SK198(Q.R)	FET	MATSUSHITA
Q3	2SC2814F4.5	TRANSISTOR	SANYO
Q4	2SC2814F4.5	TRANSISTOR	SANYO
Q5	2SC2814F4.5	TRANSISTOR	SANYO
D1	MA152K	DIODE	MATSUSHITA
R1	NRSA02J-331	MGR	330 1/10W
R2	NRSA02J-472	MGR	4.7K 1/10W
R3	NRSA02J-223	MGR	22K 1/10W
R4	NRSA02J-105	MGR	1.0M 1/10W
R5	NRSA02J-822	MGR	8.2K 1/10W
R6	NRSA02J-472	MGR	4.7K 1/10W
R7	NRSA02J-102	MGR	1.0K 1/10W
R8	NRSA02J-122	MGR	1.2K 1/10W
R9	NRSA02J-152	MGR	1.5K 1/10W
R10	NRSA02J-750	MGR	75 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCF21EZ-104	C CAP	0.10 25V
CBM25,29 CBMC4498-00A VIDEO AMP-A CBM			
Q1	2SC2814F4.5	TRANSISTOR	SANYO
Q2	2SK198(Q.R)	FET	MATSUSHITA
Q3	2SC2814F4.5	TRANSISTOR	SANYO
Q4	2SC2814F4.5	TRANSISTOR	SANYO
Q5	2SC2814F4.5	TRANSISTOR	SANYO
D1	MA152K	DIODE	MATSUSHITA
R1	NRSA02J-331	MGR	330 1/10W
R2	NRSA02J-472	MGR	4.7K 1/10W
R3	NRSA02J-223	MGR	22K 1/10W
R4	NRSA02J-105	MGR	1.0M 1/10W
R5	NRSA02J-822	MGR	8.2K 1/10W
R6	NRSA02J-472	MGR	4.7K 1/10W
R8	NRSA02J-102	MGR	1.0K 1/10W
R9	NRSA02J-152	MGR	1.5K 1/10W
R10	NRSA02J-750	MGR	75 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCF21EZ-104	C CAP	0.10 25V

7.9 KEY board assembly list 09

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Symbol No.	Part No.	Part Name	Description
IC1	NJM082D	I.C.(M)	JRC
IC2	NJM082D	I.C.(M)	JRC
IC3	TC4053BP	I.C.(M)	TOSHIBA
IC4	TC4013BAP	I.C.(M)	TOSHIBA
IC5	NJM082D	I.C.(M)	JRC
IC6	NJM082D	I.C.(M)	JRC
IC7	BA6110	I.C.(M)	ROHM
IC8	NJM2903D	I.C.(M)	JRC
IC9	TC4011BP	I.C.(M)	TOSHIBA
IC10	TC4053BP	I.C.(M)	TOSHIBA
IC11	NJM082D	I.C.(M)	JRC
IC13	BA6110	I.C.(M)	ROHM
IC14	NJM082D	I.C.(M)	JRC
IC15	TC4053BP	I.C.(M)	TOSHIBA
IC16	TC4051BP	I.C.(M)	TOSHIBA
IC17	TC4051BP	I.C.(M)	TOSHIBA
IC18	NJM082D	I.C.(M)	JRC
IC19	NJM082D	I.C.(M)	JRC
IC20	TC4053BP	I.C.(M)	TOSHIBA
IC21	NJM082D	I.C.(M)	JRC
IC22	NJM082D	I.C.(M)	JRC
IC23	BA6110	I.C.(M)	ROHM
IC24	NJM082D	I.C.(M)	JRC
IC25	NJM082D	I.C.(M)	JRC
IC26	TC4053BP	I.C.(M)	TOSHIBA
IC27	TC4069UBP	I.C.(M)	TOSHIBA
IC28	TC4053BP	I.C.(M)	TOSHIBA
IC29	TC4053BP	I.C.(M)	TOSHIBA
IC30	TC4053BP	I.C.(M)	TOSHIBA
IC31	TC4053BP	I.C.(M)	TOSHIBA
IC32	NJM082D	I.C.(M)	JRC
IC33	TC4051BP	I.C.(M)	TOSHIBA
IC34	TC4051BP	I.C.(M)	TOSHIBA
IC35	NJM082D	I.C.(M)	JRC
IC36	TC4053BP	I.C.(M)	TOSHIBA
IC37	NJM082D	I.C.(M)	JRC
IC38	TC4011BP	I.C.(M)	TOSHIBA
IC39	SCV0270-001	I.C.(H)	JVC
IC40	AN614	I.C.(M)	MATSUSHITA
IC41	AN614	I.C.(M)	MATSUSHITA
IC42	TC4053BP	I.C.(M)	TOSHIBA (E)
IC43	TC4053BP	I.C.(M)	TOSHIBA
IC44	NJM311D	I.C.(M)	JRC
IC45	NJM082D	I.C.(M)	JRC
IC46	TL082CP	I.C.(M)	TEXAS
IC47	TC4053BP	I.C.(M)	TOSHIBA
IC48	TC4071BP	I.C.(M)	TOSHIBA
IC49	NJM7809FA	I.C.(M)	JRC
IC50	NJM79M09FA	I.C.(M)	JRC
IC51	TA78L005AP	I.C.(M)	TOSHIBA
IC52	TC4069UBP	I.C.(M)	TOSHIBA
IC53	SCV0270-001	I.C.(H)	JVC
IC54	TC4053BP	I.C.(M)	TOSHIBA
IC55	NJM082D	I.C.(M)	JRC
IC56	TC4053BP	I.C.(M)	TOSHIBA
IC57	AN614	I.C.(M)	MATSUSHITA
IC58	AN614	I.C.(M)	MATSUSHITA
IC59	TC4053BP	I.C.(M)	TOSHIBA (E)
IC60	NJM311D	I.C.(M)	JRC
IC61	NJM082D	I.C.(M)	JRC

Symbol No.	Part No.	Part Name	Description
IC62	TC4053BP	I.C.(M)	TOSHIBA
IC63	TC4053BP	I.C.(M)	TOSHIBA
IC65	TC4053BP	I.C.(M)	TOSHIBA
IC66	NJM082D	I.C.(M)	JRC
Q1	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q2	2SA564(R)	TRANSISTOR	MATSUSHITA
Q3	2SK163(M.N)	FET	NEC
Q4	2SA564(R)	TRANSISTOR	MATSUSHITA
Q5	2SA564(R)	TRANSISTOR	MATSUSHITA
Q6	2SA564(R)	TRANSISTOR	MATSUSHITA
Q7	2SK163(M.N)	FET	NEC
Q8	2SA564(R)	TRANSISTOR	MATSUSHITA
Q9	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q10	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q11	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q12	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q13	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q14	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q15	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q16	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q17	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q18	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q19	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q20	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q21	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q22	2SK163(M.N)	FET	NEC
Q23	2SK163(M.N)	FET	NEC
Q24	2SK163(M.N)	FET	NEC
Q25	2SK163(M.N)	FET	NEC
Q26	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q27	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q28	2SK163(M.N)	FET	NEC
Q29	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q30	2SK163(M.N)	FET	NEC
Q31	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q32	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q33	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q34	2SK163(M.N)	FET	NEC
Q35	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q36	2SK163(M,N)	FET	NEC
Q37	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q38	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q39	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q40	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q41	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q42	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q43	2SA564(R)	TRANSISTOR	MATSUSHITA
Q44	2SA564(R)	TRANSISTOR	MATSUSHITA
Q45	2SK163(M.N)	FET	NEC
Q46	2SA564(R)	TRANSISTOR	MATSUSHITA
Q47	2SA564(R)	TRANSISTOR	MATSUSHITA
Q48	2SK163(M.N)	FET	NEC
Q49	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q50	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q51	2SA564(R)	TRANSISTOR	MATSUSHITA
Q52	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q53	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q54	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q55	2SC1685(R)	TRANSISTOR	MATSUSHITA

(KEY)

Symbol No.	Part No.	Part Name	Description
Q56	2SA564(R)	TRANSISTOR	MATSUSHITA
Q57	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q58	2SA564(R)	TRANSISTOR	MATSUSHITA
Q59	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q60	2SK163(M.N)	FET	NEC
Q61	2SA564(R)	TRANSISTOR	MATSUSHITA
Q62	2SA564(R)	TRANSISTOR	MATSUSHITA
Q63	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q64	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q65	2SA564(R)	TRANSISTOR	MATSUSHITA
Q66	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q67	2SA564(R)	TRANSISTOR	MATSUSHITA
Q68	2SA564(R)	TRANSISTOR	MATSUSHITA
Q69	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q70	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q71	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q72	2SK163(M.N)	FET	NEC
Q74	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q75	2SK163(M.N)	FET	NEC
Q76	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q80	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q81	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q82	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q83	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q84	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q85	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q86	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q87	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q88	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q89	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q90	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q91	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q92	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q93	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q94	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q95	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q96	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q97	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q98	2SK163(M.N)	FET	NEC
Q99	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q100	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q101	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q102	2SK163(M.N)	FET	NEC
Q103	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q104	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q105	2SA564(R)	TRANSISTOR	MATSUSHITA
Q106	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q107	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q108	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q109	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q110	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q111	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q112	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q113	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q114	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q115	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q116	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q117	2SK163(M.N)	FET	NEC
Q118	2SC1685(R)	TRANSISTOR	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
Q119	2SA564(R)	TRANSISTOR	MATSUSHITA
Q120	2SA564(R)	TRANSISTOR	MATSUSHITA
Q121	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q125	2SK163(M.N)	FET	NEC
Q126	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q127	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q128	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q130	2SK163(M.N)	FET	NEC
Q131	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q132	2SA564(R)	TRANSISTOR	MATSUSHITA
Q133	2SA564(R)	TRANSISTOR	MATSUSHITA
Q134	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q135	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q136	2SA564(R)	TRANSISTOR	MATSUSHITA
Q137	2SA564(R)	TRANSISTOR	MATSUSHITA
Q138	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q139	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q140	2SA564(R)	TRANSISTOR	MATSUSHITA
Q141	2SA564(R)	TRANSISTOR	MATSUSHITA
Q142	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q143	2SK163(M.N)	FET	NEC
D1	MA165	DIODE	MATSUSHITA
D2	MA165	DIODE	MATSUSHITA
D3	MA165	DIODE	MATSUSHITA
D4	MA165	DIODE	MATSUSHITA
D5	MA165	DIODE	MATSUSHITA
D6	MA165	DIODE	MATSUSHITA
D7	MA165	DIODE	MATSUSHITA
D8	MA165	DIODE	MATSUSHITA
D9	MA165	DIODE	MATSUSHITA
D10	MA165	DIODE	MATSUSHITA
D11	MA165	DIODE	MATSUSHITA
D12	MA165	DIODE	MATSUSHITA
D13	MA165	DIODE	MATSUSHITA
D14	MA165	DIODE	MATSUSHITA
D20	MA165	DIODE	MATSUSHITA
R1	QRD161J-103	CR	10K 1/6W
R2	QRD161J-103	CR	10K 1/6W
R3	QRD161J-103	CR	10K 1/6W
R4	QRD161J-103	CR	10K 1/6W
R5	QRD161J-103	CR	10K 1/6W
R6	QRD161J-333	CR	33K 1/6W
R7	QRD161J-473	CR	47K 1/6W
R8	QRD161J-183	CR	18K 1/6W
R9	QRD161J-103	CR	10K 1/6W
R10	QRD161J-103	CR	10K 1/6W
R11	QRD161J-103	CR	10K 1/6W
R12	QRD161J-103	CR	10K 1/6W
R13	QRD161J-103	CR	10K 1/6W
R14	QRD161J-103	CR	10K 1/6W
R15	QRD161J-334	CARBON RESISTOR	330K 1/6W
R16	QRD161J-0R0	CR	0 1/6W
R17	QRD161J-102	CR	1.0K 1/6W
R18	QRD161J-102	CR	1.0K 1/6W
R19	QRD161J-104	CR	100K 1/6W
R20	QRD161J-103	CR	10K 1/6W

Symbol No.	Part No.	Part Name	Description
R21	QRD161J-222	CR	2.2K 1/6W
R22	QRD161J-333	CR	33K 1/6W
R23	QRD161J-683	CR	68K 1/6W
R24	QVPB613-204	VR	200K H.TRI LEV
R25	QRD161J-683	CR	68K 1/6W
R26	QVPB613-204	VR	200K H.SAW LEV
R27	QRD161J-472	CR	4.7K 1/6W
R28	QRD161J-472	CR	4.7K 1/6W
R29	QRD161J-103	CR	10K 1/6W
R30	QVPB613-502	TRIM.RESISTOR	5K H.TOP LEV
R31	QRD161J-183	CR	18K 1/6W
R32	QRD161J-103	CR	10K 1/6W
R33	QRD161J-103	CR	10K 1/6W
R34	QRD161J-103	CR	10K 1/6W
R35	QRD161J-103	CR	10K 1/6W
R36	QRD161J-104	CR	100K 1/6W
R37	QVPB613-102	TRIM.RESISTOR	1K H.PARA ADJ
R38	QVPB613-103	TRIM.RESISTOR	10K H.PARA LEV
R39	QRD161J-102	CR	1.0K 1/6W
R40	QRD161J-682	CR	6.8K 1/6W
R41	QRD161J-822	CR	8.2K 1/6W
R42	QRD161J-471	CR	470 1/6W
R43	QRD161J-471	CR	470 1/6W
R44	QRD161J-223	CR	22K 1/6W
R45	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R46	QRD161J-103	CR	10K 1/6W
R47	QRD161J-103	CR	10K 1/6W
R48	QRD161J-472	CR	4.7K 1/6W
R49	QVPB613-202	TRIM.RESISTOR	2K H.INV DC
R50	QRD161J-562	CR	5.6K 1/6W
R51	QRD161J-223	CR	22K 1/6W
R52	QRD161J-223	CR	22K 1/6W
R53	QRD161J-103	CR	10K 1/6W
R54	QRD161J-223	CR	22K 1/6W
R55	QRD161J-103	CR	10K 1/6W
R56	QRD161J-222	CR	2.2K 1/6W
R57	QRD161J-273	CR	27K 1/6W
R58	QVPB613-502	TRIM.RESISTOR	5K V.TOP LEV
R59	QRD161J-103	CR	10K 1/6W
R60	QRD161J-103	CR	10K 1/6W
R61	QRD161J-103	CR	10K 1/6W
R62	QRD161J-103	CR	10K 1/6W
R63	QRD161J-103	CR	10K 1/6W
R64	QRD161J-103	CR	10K 1/6W
R65	QRD161J-103	CR	10K 1/6W
R66	QRD161J-103	CR	10K 1/6W
R67	QRD161J-103	CR	10K 1/6W
R68	QRD161J-102	CR	1.0K 1/6W
R69	QRD161J-102	CR	1.0K 1/6W
R70	QRD161J-104	CR	100K 1/6W
R71	QRD161J-103	CR	10K 1/6W
R72	QRD161J-222	CR	2.2K 1/6W
R73	QRD161J-333	CR	33K 1/6W
R74	QRD161J-683	CR	68K 1/6W
R75	QVPB613-204	VR	200K V.TRI LEV
R76	QRD161J-683	CR	68K 1/6W
R77	QVPB613-204	VR	200K V.SAW LEV
R78	QRD161J-472	CR	4.7K 1/6W
R79	QRD161J-472	CR	4.7K 1/6W
R80	QRD161J-103	CR	10K 1/6W

Symbol No.	Part No.	Part Name	Description
R81	QRD161J-103	CR	10K 1/6W
R82	QRD161J-103	CR	10K 1/6W
R83	QRD161J-104	CR	100K 1/6W
R84	QVPB613-103	TRIM.RESISTOR	10K V.PARA ADJ
R85	QRD161J-103	CR	10K 1/6W
R86	QVPB613-103	TRIM.RESISTOR	10K V.PARA LEV
R87	QRD161J-222	CR	2.2K 1/6W
R88	QRD161J-822	CR	8.2K 1/6W
R89	QRD161J-682	CR	6.8K 1/6W
R90	QRD161J-823	CR	82K 1/6W
R91	QRD161J-471	CR	470 1/6W
R92	QRD161J-471	CR	470 1/6W
R93	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R94	QRD161J-103	CR	10K 1/6W
R95	QRD161J-103	CR	10K 1/6W
R96	QRD161J-472	CR	4.7K 1/6W
R97	QVPB613-202	TRIM.RESISTOR	2K V.INV DC
R98	QRD161J-562	CR	5.6K 1/6W
R99	QRD161J-332	CR	3.3K 1/6W
R100	QRD161J-332	CR	3.3K 1/6W
R101	QRD161J-393	CR	39K 1/6W
R102	QVPB613-102	TRIM.RESISTOR	1K CONE BIAS
R103	QRD161J-220	CR	22 1/6W
R104	QRD161J-153	CR	15K 1/6W
R105	QRD161J-332	CR	3.3K 1/6W
R106	QRD161J-103	CR	10K 1/6W
R107	QRD161J-221	CR	220 1/6W
R108	QRD161J-221	CR	220 1/6W
R109	QRD161J-472	CR	4.7K 1/6W
R110	QRD161J-472	CR	4.7K 1/6W
R111	QRD161J-222	CR	2.2K 1/6W
R112	QRD161J-103	CR	10K 1/6W
R113	QRD161J-472	CR	4.7K 1/6W
R114	QRD161J-472	CR	4.7K 1/6W
R115	QRD161J-152	CR	1.5K 1/6W
R116	QRD161J-152	CR	1.5K 1/6W
R117	QRD161J-223	CR	22K 1/6W
R118	QVPB613-103	TRIM.RESISTOR	10K CONE DC
R119	QRD161J-152	CR	1.5K 1/6W
R120	QRD161J-822	CR	8.2K 1/6W
R121	QVPB613-202	TRIM.RESISTOR	2K CONE INV DC
R122	QRD161J-103	CR	10K 1/6W
R123	QRD161J-152	CR	1.5K 1/6W
R124	QRD161J-561	CR	560 1/6W
R125	QRD161J-223	CR	22K 1/6W
R126	QRD161J-223	CR	22K 1/6W
R127	QRD161J-103	CR	10K 1/6W
R128	QRD161J-472	CR	4.7K 1/6W
R129	QRD161J-123	CR	12K 1/6W
R130	QRD161J-123	CR	12K 1/6W
R131	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R132	QRD161J-393	CR	39K 1/6W
R133	QRD161J-393	CR	39K 1/6W
R134	QRD161J-123	CR	12K 1/6W
R135	QRD161J-183	CR	18K 1/6W
R136	QRD161J-472	CR	4.7K 1/6W
R137	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R138	QRD161J-123	CR	12K 1/6W
R139	QRD161J-123	CR	12K 1/6W
R140	QRD161J-123	CR	12K 1/6W

(KEY)

Symbol No.	Part No.	Part Name	Description
R141	QRD161J-123	CR	12K 1/6W
R142	QRD161J-123	CR	12K 1/6W
R143	QRD161J-183	CR	18K 1/6W
R144	QRD161J-121	CR	120 1/6W
R145	QRD161J-221	CR	220 1/6W
R146	QRD161J-471	CR	470 1/6W
R147	QRD161J-821	CR	820 1/6W
R148	QRD161J-122	CR	1.2K 1/6W
R149	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R150	QRD161J-222	CR	2.2K 1/6W
R151	QRD161J-121	CR	120 1/6W
R152	QRD161J-221	CR	220 1/6W
R153	QRD161J-471	CR	470 1/6W
R154	QRD161J-821	CR	820 1/6W
R155	QRD161J-122	CR	1.2K 1/6W
R156	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R157	QRD161J-103	CR	10K 1/6W
R158	QRD161J-103	CR	10K 1/6W
R159	QRD161J-123	CR	12K 1/6W
R160	QRD161J-103	CR	10K 1/6W
R161	QRD161J-103	CR	10K 1/6W
R162	QRD161J-222	CR	2.2K 1/6W
R163	QRD161J-222	CR	2.2K 1/6W
R164	QRD161J-123	CR	12K 1/6W
R165	QRD161J-222	CR	2.2K 1/6W
R166	QRD161J-222	CR	2.2K 1/6W
R167	QRD161J-103	CR	10K 1/6W
R168	QRD161J-103	CR	10K 1/6W
R169	QRD161J-103	CR	10K 1/6W
R170	QRD161J-123	CR	12K 1/6W
R171	QRD161J-222	CR	2.2K 1/6W
R172	QRD161J-222	CR	2.2K 1/6W
R173	QRD161J-123	CR	12K 1/6W
R174	QRD161J-222	CR	2.2K 1/6W
R175	QRD161J-222	CR	2.2K 1/6W
R176	QRD161J-222	CR	2.2K 1/6W
R177	QRD161J-103	CR	10K 1/6W
R178	QRD161J-103	CR	10K 1/6W
R179	QRD161J-103	CR	10K 1/6W
R180	QRD161J-103	CR	10K 1/6W
R181	QRD161J-562	CR	5.6K 1/6W
R182	QVPB613-202	TRIM.RESISTOR	2K BL DC
R183	QRD161J-273	CR	27K 1/6W
R184	QRD161J-103	CR	10K 1/6W
R185	QRD161J-103	CR	10K 1/6W
R186	QRD161J-103	CR	10K 1/6W
R187	QRD161J-222	CR	2.2K 1/6W
R189	QRD161J-222	CR	2.2K 1/6W
R190	QRD161J-222	CR	2.2K 1/6W
R191	QRD161J-222	CR	2.2K 1/6W
R192	QRD161J-183	CR	18K 1/6W
R193	QRD161J-273	CR	27K 1/6W
R194	QRD161J-223	CR	22K 1/6W
R195	QRD161J-223	CR	22K 1/6W
R196	QRD161J-223	CR	22K 1/6W
R197	QRD161J-223	CR	22K 1/6W
R198	QRD161J-102	CR	1.0K 1/6W
R199	QRD161J-102	CR	1.0K 1/6W
R200	QRD161J-223	CR	22K 1/6W
R201	QRD161J-103	CR	10K 1/6W

Symbol No.	Part No.	Part Name	Description
R202	QRD161J-392	CR	3.9K 1/6W
R203	QVPB613-202	TRIM.RESISTOR	2K WIPE KEY DC
R204	QRD161J-392	CR	3.9K 1/6W
R205	QRD161J-223	CR	22K 1/6W
R206	QRD161J-103	CR	10K 1/6W
R207	QRD161J-682	CR	6.8K 1/6W
R208	QVPB613-202	TRIM.RESISTOR	2K P.P KEY DC
R209	QRD161J-682	CR	6.8K 1/6W
R210	QRD161J-823	CR	82K 1/6W
R211	QRD161J-183	CR	18K 1/6W
R212	QRD161J-563	CR	56K 1/6W
R213	QVPB613-502	TRIM.RESISTOR	5K MIX DC
R214	QRD161J-104	CR	100K 1/6W
R215	QRD161J-103	CR	10K 1/6W
R216	QRD161J-103	CR	10K 1/6W
R217	QRD161J-472	CR	4.7K 1/6W
R218	QRD161J-822	CR	8.2K 1/6W
R219	QRD161J-222	CR	2.2K 1/6W
R220	QRD161J-222	CR	2.2K 1/6W
R221	QRD161J-562	CR	5.6K 1/6W
R222	QRD161J-472	CR	4.7K 1/6W
R223	QRD161J-123	CR	12K 1/6W
R224	QRD161J-472	CR	4.7K 1/6W
R225	QRD161J-223	CR	22K 1/6W
R226	QRD161J-562	CR	5.6K 1/6W
R227	QVPB613-202	TRIM.RESISTOR	2K SLIDE KEY DC
R228	QRD161J-682	CR	6.8K 1/6W
R229	QRD161J-562	CR	5.6K 1/6W
R231	QRD161J-471	CR	470 1/6W
R233	QRV141F-75R0	M.F.RESISTOR	75 1/4W
R234	QRD161J-273	CR	27K 1/6W
R235	QRD161J-223	CR	22K 1/6W
R236	QRD161J-102	CR	1.0K 1/6W
R237	QRV141F-75R0	M.F.RESISTOR	75 1/4W
R238	QRD161J-273	CR	27K 1/6W
R239	QRD161J-223	CR	22K 1/6W
R240	QRD161J-102	CR	1.0K 1/6W
R241	QRV141F-75R0	M.F.RESISTOR	75 1/4W
R242	QRD161J-273	CR	27K 1/6W
R243	QRD161J-223	CR	22K 1/6W
R244	QRD161J-102	CR	1.0K 1/6W
R245	QRD161J-272	CR	2.7K 1/6W
R246	QRD161J-681	CR	680 1/6W
R247	QRD161J-681	CR	680 1/6W
R248	QRD161J-681	CR	680 1/6W
R249	QRD161J-473	CR	47K 1/6W
R250	QRD161J-223	CR	22K 1/6W
R251	QRD161J-122	CR	1.2K 1/6W
R252	QVPB613-501	TRIM.RESISTOR	500 C.FIL.Y LEV
R253	QRD161J-272	CR	2.7K 1/6W
R254	QRD161J-102	CR	1.0K 1/6W
R255	QRD161J-102	CR	1.0K 1/6W
R256	QRD161J-393	CR	39K 1/6W
R257	QRD161J-473	CR	47K 1/6W
R258	QRD161J-821	CR	820 1/6W
R259	QRD161J-152	CR	1.5K 1/6W
R260	QRD161J-152	CR	1.5K 1/6W
R261	QRD161J-105	CR	1.0M 1/6W
R262	QRD161J-223	CR	22K 1/6W
R263	QRD161J-221	CR	220 1/6W

Symbol No.	Part No.	Part Name	Description
R264	QRD161J-223	CR	22K 1/6W
R265	QVPB613-501	TRIM.RESISTOR	500 R-Y LEV
R266	QRD161J-561	CR	560 1/6W
R267	QRD161J-102	CR	1.0K 1/6W
R268	QRD161J-393	CR	39K 1/6W
R269	QRD161J-473	CR	47K 1/6W
R270	QRD161J-102	CR	1.0K 1/6W
R271	QRD161J-152	CR	1.5K 1/6W
R272	QRD161J-152	CR	1.5K 1/6W
R273	QRD161J-105	CR	1.0M 1/6W
R274	QRD161J-223	CR	22K 1/6W
R275	QRD161J-220	CR	22 1/6W
R276	QRD161J-220	CR	22 1/6W
R277	QRD161J-392	CR	3.9K 1/6W
R278	QVPB613-102	TRIM.RESISTOR	1K C.BAL
R279	QRD161J-222	CR	2.2K 1/6W
R280	QVPB613-102	TRIM.RESISTOR	1K C.BAL
R281	QVPB613-102	TRIM.RESISTOR	1K C.BAL(E)
R282	QRD161J-0R0	CR	0 1/6W(U)
R283	QRD161J-123	CR	12K 1/6W(E)
R284	QRD161J-0R0	CR	0 1/6W(U)
R285	QRD161J-473	CR	47K 1/6W
R286	QRD161J-473	CR	47K 1/6W
R287	QRD161J-102	CR	1K 1/6W
R288	QRD161J-102	CR	1K 1/6W
R289	QVPB613-202	TRIM.RESISTOR	2K SC PHASE 1
R290	QRD161J-102	CR	1K 1/6W
R291	QVPB613-501	TRIM.RESISTOR	500 QUADRATURE1
R292	QRD161J-561	CR	560 1/6W(U)
	QRD161J-221	CR	220 1/6W(E)
R293	QRD161J-222	CR	2.2K 1/6W
R294	QRD161J-222	CR	2.2K 1/6W
R295	QRD161J-222	CR	2.2K 1/6W
R296	QVPB613-501	TRIM.RESISTOR	500 C.FIL.C LEV
R297	QRD161J-471	CR	470 1/6W
R298	QRD161J-472	CR	4.7K 1/6W
R299	QRD161J-103	CR	10K 1/6W
R300	QRD161J-472	CR	4.7K 1/6W
R301	QRD161J-223	CR	22K 1/6W
R302	QRD161J-223	CR	22K 1/6W
R303	QRD161J-103	CR	10K 1/6W
R304	QRD161J-221	CR	220 1/6W
R305	QRD161J-221	CR	220 1/6W
R306	QRD161J-222	CR	2.2K 1/6W
R307	QRD161J-471	CR	470 1/6W
R308	QRD161J-471	CR	470 1/6W
R309	QRD161J-102	CR	1.0K 1/6W
R310	QRD161J-473	CR	47K 1/6W
R311	QRD161J-393	CR	39K 1/6W
R312	QRD161J-681	CR	680 1/6W
R313	QRD161J-103	CR	10K 1/6W
R314	QRD161J-393	CR	39K 1/6W
R315	QRD161J-473	CR	47K 1/6W
R316	QRD161J-222	CR	2.2K 1/6W
R317	QRD161J-0R0	CR	0 1/6W
R318	QRD161J-823	CR	82K 1/6W
R319	QRD161J-102	CR	1.0K 1/6W
R320	QRD161J-223	CR	22K 1/6W
R321	QRD161J-103	CR	10K 1/6W
R322	QRD161J-123	CR	12K 1/6W

Symbol No.	Part No.	Part Name	Description
R323	QRD161J-562	CR	5.6K 1/6W
R324	QRD161J-682	CR	6.8K 1/6W
R325	QRD161J-681	CR	680 1/6W
R326	QRD161J-152	CR	1.5K 1/6W
R327	QRD161J-562	CR	5.6K 1/6W
R328	QRD161J-821	CR	820 1/6W
R329	QRD161J-102	CR	1.0K 1/6W
R330	QRD161J-272	CR	2.7K 1/6W
R331	QRD161J-682	CR	6.8K 1/6W
R332	QRD161J-222	CR	2.2K 1/6W
R333	QRD161J-222	CR	2.2K 1/6W
R334	QRD161J-221	CR	220 1/6W
R335	QRD161J-103	CR	10K 1/6W
R336	QRD161J-103	CR	10K 1/6W
R337	QRD161J-103	CR	10K 1/6W
R338	QRD161J-272	CR	2.7K 1/6W
R339	QRD161J-682	CR	6.8K 1/6W
R340	QRD161J-222	CR	2.2K 1/6W
R341	QRD161J-183	CR	18K 1/6W
R342	QRD161J-223	CR	22K 1/6W
R343	QRD161J-473	CR	47K 1/6W
R344	QRD161J-153	CR	15K 1/6W
R345	QRD161J-103	CR	10K 1/6W
R346	QRD161J-103	CR	10K 1/6W
R347	QRD161J-103	CR	10K 1/6W
R348	QRD161J-103	CR	10K 1/6W
R349	QRD161J-103	CR	10K 1/6W
R350	QRD161J-473	CR	47K 1/6W
R351	QRD161J-183	CR	18K 1/6W
R352	QVPB613-202	TRIM.RESISTOR	2K KEY INV DC
R353	QRD161J-183	CR	18K 1/6W
R354	QRD161J-272	CR	2.7K 1/6W
R355	QRD161J-272	CR	2.7K 1/6W
R356	QRD161J-223	CR	22K 1/6W
R357	QRD161J-472	CR	4.7K 1/6W
R358	QRD161J-472	CR	4.7K 1/6W
R359	QRD161J-222	CR	2.2K 1/6W
R360	QRD161J-472	CR	4.7K 1/6W
R362	QRD161J-223	CR	22K 1/6W
R364	QRD161J-393	CR	39K 1/6W
R365	QVPB613-103	TRIM.RESISTOR	10K PGM CTL DC
R366	QRD161J-333	CR	33K 1/6W
R367	QRD161J-392	CR	3.9K 1/6W
R368	QRD161J-472	CR	4.7K 1/6W
R369	QRD161J-472	CR	4.7K 1/6W
R370	QRD161J-223	CR	22K 1/6W
R371	QRD161J-105	CR	1.0M 1/6W
R372	QRD161J-103	CR	10K 1/6W
R373	QRD161J-223	CR	22K 1/6W
R374	QVPB613-103	TRIM.RESISTOR	10K PST CTL DC
R375	QRD161J-223	CR	22K 1/6W
R376	QRD161J-103	CR	10K 1/6W
R377	QRD161J-823	CR	82K 1/6W
R380	QRD161J-221	CR	220 1/6W
R381	QRD161J-272	CR	2.7K 1/6W
R382	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R383	QRD161J-273	CR	27K 1/6W
R384	QRD161J-223	CR	22K 1/6W
R385	QRD161J-102	CR	1.0K 1/6W

(KEY)

Symbol No.	Part No.	Part Name	Description	
R386	QRV141F-75R0	M.F.RESISTOR	75.0	1/4W
R387	QRD161J-273	CR	27K	1/6W
R388	QRD161J-223	CR	22K	1/6W
R389	QRD161J-102	CR	1.0K	1/6W
R390	QRV141F-75R0	M.F.RESISTOR	75.0	1/4W
R391	QRD161J-273	CR	27K	1/6W
R392	QRD161J-223	CR	22K	1/6W
R393	QRD161J-102	CR	1.0K	1/6W
R394	QRD161J-681	CR	680	1/6W
R395	QRD161J-273	CR	27K	1/6W
R396	QRD161J-153	CR	15K	1/6W
R397	QRD161J-102	CR	1K	1/6W
R398	QVPB613-102	TRIM.RESISTOR	1K	DK FIL Y LEV
R399	QRD161J-272	CR	2.7K	1/6W
R400	QRD161J-222	CR	2.2K	1/6W
R401	QRD161J-222	CR	2.2K	1/6W
R402	QRD161J-123	CR	12K	1/6W(U)
	QRD161J-682	CR	6.8K	1/6W(E)
R403	QRD161J-472	CR	4.7K	1/6W
R404	QRD161J-102	CR	1.0K	1/6W
R405	QRD161J-104	CR	100K	1/6W
R406	QRD161J-182	CARBON RESISTOR	1.8K	1/6W
R407	QRD161J-102	CR	1.0K	1/6W
R408	QRD161J-104	CR	100K	1/6W
R409	QRD161J-332	CR	3.3K	1/6W
R410	QRD161J-102	CR	1.0K	1/6W
R411	QRD161J-223	CR	22K	1/6W
R412	QVPB613-103	TRIM.RESISTOR	10K	PED ADJ
R413	QRD161J-563	CR	56K	1/6W
R414	QRD161J-472	CR	4.7K	1/6W
R415	QRD161J-472	CR	4.7K	1/6W
R416	QRD161J-103	CR	10K	1/6W
R417	QRD161J-183	CR	18K	1/6W
R418	QRD161J-223	CR	22K	1/6W
R419	QRD161J-222	CR	2.2K	1/6W
R420	QRD161J-561	CR	560	1/6W
R421	QVPB613-202	TRIM.RESISTOR	2K	SYNC LEV 2
R422	QRD161J-472	CR	4.7K	1/6W
R423	QVPB613-103	TRIM.RESISTOR	10K	SETUP LEV(U)
R424	QRD161J-273	CR	27K	1/6W(U)
R425	QRD161J-471	CR	470	1/6W
R426	QRD161J-273	CR	27K	1/6W
R427	QRD161J-223	CR	22K	1/6W
R428	QRD161J-681	CR	680	1/6W
R429	QRD161J-681	CR	680	1/6W
R430	QRD161J-222	CR	2.2K	1/6W
R431	QRD161J-681	CR	680	1/6W
R432	QRD161J-681	CR	680	1/6W
R433	QRD161J-472	CR	4.7K	1/6W
R434	QRD161J-473	CR	47K	1/6W
R435	QRD161J-393	CR	39K	1/6W
R436	QRD161J-222	CR	2.2K	1/6W
R437	QRD161J-102	CR	1.0K	1/6W
R438	QRD161J-682	CR	6.8K	1/6W
R439	QRD161J-102	CR	1.0K	1/6W
R440	QVPB613-203	VR	20K	BURST PHASE
R441	QRD161J-684	CR	680K	1/6W(U)
	QRD161J-682	CR	6.8K	1/6W(E)
R442	QRD161J-473	CR	47K	1/6W

Symbol No.	Part No.	Part Name	Description	
R443	QRD161J-393	CR	39K	1/6W
R444	QRD161J-821	CR	820	1/6W
R445	QRD161J-222	CR	2.2K	1/6W
R446	QRD161J-105	CR	1.0M	1/6W
R447	QRD161J-223	CR	22K	1/6W
R448	QRD161J-103	CR	10K	1/6W
R449	QRD161J-222	CR	2.2K	1/6W
R450	QRD161J-152	CR	1.5K	1/6W
R451	QRD161J-473	CR	47K	1/6W
R452	QRD161J-393	CR	39K	1/6W
R453	QRD161J-222	CR	2.2K	1/6W
R454	QRD161J-561	CR	560	1/6W
R455	QVPB613-501	TRIM.RESISTOR	500	R-Y LEV
R456	QRD161J-332	CR	3.3K	1/6W
R457	QVPB613-203	VR	20K	BURST LEV
R458	QRD161J-332	CR	3.3K	1/6W
R459	QRD161J-102	CR	1.0K	1/6W
R460	QRD161J-473	CR	47K	1/6W
R461	QRD161J-393	CR	39K	1/6W
R462	QRD161J-821	CR	820	1/6W
R463	QRD161J-222	CR	2.2K	1/6W
R464	QRD161J-105	CR	1.0M	1/6W
R465	QRD161J-223	CR	22K	1/6W
R466	QRD161J-220	CR	22	1/6W
R467	QRD161J-220	CR	22	1/6W
R468	QRD161J-392	CR	3.9K	1/6W
R469	QVPB613-102	TRIM.RESISTOR	1.0K	
R470	QRD161J-222	CR	2.2K	1/6W
R471	QVPB613-102	TRIM.RESISTOR	1K	C.BAL
R472	QVPB613-102	TRIM.RESISTOR	1K	C.BAL(E)
R473	QRD161J-0R0	CR	0	1/6W(U)
R474	QRD161J-123	CR	12K	1/6W(E)
R475	QRD161J-0R0	CR	0	1/6W(U)
R476	QRD161J-222	CR	2.2K	1/6W
R477	QRD161J-222	CR	2.2K	1/6W
R478	QVPB613-501	TRIM.RESISTOR	500	DK FL C LEV
R479	QRD161J-471	CR	470	1/6W
R480	QRD161J-472	CR	4.7K	1/6W
R481	QRD161J-472	CR	4.7K	1/6W
R482	QRD161J-222	CR	2.2K	1/6W
R483	QRD161J-473	CR	47K	1/6W
R484	QRD161J-473	CR	47K	1/6W
R485	QRD161J-222	CR	2.2K	1/6W
R486	QRD161J-471	CR	470	1/6W
R487	QVPB613-102	TRIM.RESISTOR	1K	BURST GAIN
R488	QRD161J-682	CR	6.8K	1/6W
R489	QVPB613-502	TRIM.RESISTOR	5K	SYNC GAIN
R490	QRD161J-102	CR	1K	1/6W
R491	QRD161J-473	CR	47K	1/6W
R492	QRD161J-393	CR	39K	1/6W
R493	QRD161J-102	CR	1.0K	1/6W
R494	QRD161J-394	CR	390K	1/6W
R495	QRD161J-473	CR	47K	1/6W
R496	QRD161J-394	CR	390K	1/6W
R497	QRD161J-473	CR	47K	1/6W
R498	QRD161J-473	CR	47K	1/6W
R499	QRD161J-473	CR	47K	1/6W
R500	QRD161J-102	CR	1K	1/6W
R501	QRD161J-102	CR	1K	1/6W

Symbol No.	Part No.	Part Name	Description
R502	QVPB613-202	TRIM.RESISTOR	2K SC PHASE 2
R503	QRD161J-222	CR	2.2K 1/6W
R504	QVPB613-501	TRIM.RESISTOR	500 QUADRATURE2
R505	QRD161J-561	CR	560 1/6W (U)
	QRD161J-221	CR	220 1/6W (E)
R506	QRD161J-222	CR	2.2K 1/6W
R507	QRD161J-222	CR	2.2K 1/6W
R508	QRV141F-75R0	M.F.RESISTOR	75.0 1/4W
R509	QRD161J-393	CR	39K 1/6W
R510	QRD161J-473	CR	47K 1/6W
R511	QRD161J-222	CR	2.2K 1/6W
R512	QRD161J-471	CR	470 1/6W
R513	QRD161J-471	CR	470 1/6W
R514	QRD161J-681	CR	680 1/6W
R515	QRD161J-473	CR	47K 1/6W
R516	QRD161J-273	CR	27K 1/6W
R517	QRD161J-681	CR	680 1/6W
R518	QRD161J-823	CR	82K 1/6W
R520	QRD161J-393	CR	39K 1/6W
R521	QRD161J-473	CR	47K 1/6W
R522	QRD161J-823	CR	82K 1/6W
R523	QRD161J-122	CR	1.2K 1/6W
R524	QRD161J-152	CR	1.5K 1/6W
R525	QRD161J-223	CR	22K 1/6W
R526	QRD161J-473	CR	47K 1/6W
R527	QRD161J-473	CR	47K 1/6W
R528	QRD161J-472	CR	4.7K 1/6W
R529	QRD161J-103	CR	10K 1/6W
R530	QRD161J-682	CR	6.8K 1/6W
R531	QRD161J-681	CR	680 1/6W
R532	QRD161J-152	CR	1.5K 1/6W
R533	QRD161J-562	CR	5.6K 1/6W
R534	QRD161J-821	CR	820 1/6W
R535	QRD161J-222	CR	2.2K 1/6W
R536	QRD161J-222	CR	2.2K 1/6W
R537	QRD161J-472	CR	4.7K 1/6W
R538	QRD161J-221	CR	220 1/6W
R539	QRD161J-221	CR	220 1/6W
R540	QRD161J-332	CR	3.3K 1/6W
R541	QRD161J-332	CR	3.3K 1/6W
R542	QRD161J-105	CR	1.0M 1/6W
R543	QRD161J-223	CR	22K 1/6W
R544	QRD161J-103	CR	10K 1/6W
R545	QRD161J-0R0	CR	0 1/6W
R546	QRD161J-0R0	CR	0 1/6W
R551	QRD161J-103	CR	10K 1/6W
R552	QRD161J-103	CR	10K 1/6W
R553	QRD161J-103	CR	10K 1/6W
R554	QRD161J-0R0	CR	0 1/6W
R555	QRD161J-393	CR	39K 1/6W
R556	QRD161J-104	CR	100K 1/6W
R557	QRD161J-563	CR	56K 1/6W
R558	QRD161J-473	CR	47K 1/6W
R559	QRD161J-153	CR	15K 1/6W
R560	QRD161J-102	CR	1.0K 1/6W
R561	QRD161J-472	CR	4.7K 1/6W
R562	QRD161J-102	CR	1.0K 1/6W
R563	QRD161J-272	CR	2.7K 1/6W
R564	QRD161J-682	CR	6.8K 1/6W

Symbol No.	Part No.	Part Name	Description
R565	QRD161J-222	CR	2.2K 1/6W
R566	QRD161J-332	CR	3.3K 1/6W
R567	QRD161J-223	CR	22K 1/6W
R568	QRD161J-105	CR	1.0M 1/6W
R571	QRD161J-103	CR	10K 1/6W
R572	QRD161J-332	CR	3.3K 1/6W
R573	QVPB613-203	VR	20K BURST LEV
R574	QRD161J-332	CR	3.3K 1/6W
R575	QRD161J-682	CR	6.8K 1/6W
R576	QVPB613-203	VR	20K BURST PHASE
R577	QRD161J-682	CR	6.8K 1/6W (E)
R600	QRD161J-152	CR	1.5K 1/6W
R601	QRD161J-222	CR	2.2K 1/6W
R602	QVPB613-204	VR	200K SYNC LEV 1 (U)
R603	QRD161J-472	CR	4.7K 1/6W
R604	QRD161J-332	CR	3.3K 1/6W
R605	QRD161J-272	CR	2.7K 1/6W
R606	QRD161J-472	CR	4.7K 1/6W
R607	QRD161J-0R0	CR	0 1/6W
R608	QRD161J-472	CR	4.7K 1/6W
R609	QRD161J-332	CR	3.3K 1/6W
R610	QRD161J-272	CR	2.7K 1/6W
R611	QRD161J-472	CR	4.7K 1/6W
R612	QRD161J-0R0	CR	0 1/6W
R613	QRD161J-472	CR	4.7K 1/6W
R614	QRD161J-473	CR	47K 1/6W
R615	QVPB613-103	TRIM.RESISTOR	10K PGM DSK DC
R616	QRD161J-473	CR	47K 1/6W
R617	QVPB613-103	TRIM.RESISTOR	10K PVW DSK DC
R618	QRD161J-473	CR	47K 1/6W
R619	QRD161J-473	CR	47K 1/6W
R620	QRD161J-103	CR	10K 1/6W
R621	QRD161J-471	CR	470 1/6W
R622	QRD161J-471	CR	470 1/6W
R623	QRD161J-333	CR	33K 1/6W
R624	QRD161J-105	CR	1.0M 1/6W
R625	QRD161J-104	CR	100K 1/6W
R626	QRD161J-104	CR	100K 1/6W
R627	QRD161J-183	CR	18K 1/6W
R628	QRD161J-153	CR	15K 1/6W
R629	QRD161J-104	CR	100K 1/6W
R630	QRD161J-0R0	CR	0 1/6W
R632	QRD161J-472	CR	4.7K 1/6W
R633	QRD161J-103	CR	10K 1/6W
R634	QRD161J-103	CR	10K 1/6W
R635	QRD161J-103	CR	10K 1/6W
R636	QRD161J-472	CR	4.7K 1/6W
R637	QRD161J-223	CR	22K 1/6W
R638	QRD161J-472	CR	4.7K 1/6W
R639	QRD161J-472	CR	4.7K 1/6W
R640	QRD161J-183	CR	18K 1/6W
R700	QRD161J-471	CR	470 1/6W
R701	QRD161J-681	CR	680 1/6W
C1	QEPA1HM-105	NP CAP	1.0 50V
C2	QCF11HP-103	CER.CAPACITOR	0.010 50V
C3	QER41CM-476	E CAP	47 16V
C4	QCS11HJ-101	CER.CAPACITOR	100P 50V
C5	QER41HM-105	E CAP	1.0 50V

(KEY)

Symbol No.	Part No.	Part Name	Description
C6	QCS11HJ-101	CER.CAPACITOR	100P 50V
C7	QEPA1HM-105	NP CAP	1.0 50V
C8	QCF11HP-103	CER.CAPACITOR	0.010 50V
C9	QCS11HJ-221	C CAP	220P 50V
C10	QFN41HJ-103	MY CAP	0.010 50V
C11	QCF11HP-103	CER.CAPACITOR	0.010 50V
C12	QCF11HP-103	CER.CAPACITOR	0.010 50V
C13	QCF11HP-103	CER.CAPACITOR	0.010 50V
C14	QCS11HJ-5R0	C CAP	5.0P 50V
C15	QCF11HP-103	CER.CAPACITOR	0.010 50V
C16	QCF11HP-103	CER.CAPACITOR	0.010 50V
C17	QCS11HJ-100	CER.CAPACITOR	10P 50V
C18	QCF11HP-103	CER.CAPACITOR	0.010 50V
C19	QCF11HP-103	CER.CAPACITOR	0.010 50V
C20	QCF11HP-103	CER.CAPACITOR	0.010 50V
C21	QCS11HJ-470	CER.CAPACITOR	47P 50V
C22	QCS11HJ-221	C CAP	220P 50V
C23	QCF11HP-103	CER.CAPACITOR	0.010 50V
C24	QER41CM-476	E CAP	47 16V
C25	QCF11HP-103	CER.CAPACITOR	0.010 50V
C26	QEPA1HM-105	NP CAP	1.0 50V
C27	QCS11HJ-101	CER.CAPACITOR	100P 50V
C28	QER41HM-105	E CAP	1.0 50V
C29	QEPA1HM-105	NP CAP	1.0 50V
C30	QCS11HJ-101	CER.CAPACITOR	100P 50V
C31	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C32	QCS11HJ-221	C CAP	220P 50V
C33	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C34	QCF11HP-103	CER.CAPACITOR	0.010 50V
C35	QCF11HP-103	CER.CAPACITOR	0.010 50V
C36	QCF11HP-103	CER.CAPACITOR	0.010 50V
C37	QCF11HP-103	CER.CAPACITOR	0.010 50V
C38	QCF11HP-103	CER.CAPACITOR	0.010 50V
C39	QCF11HP-103	CER.CAPACITOR	0.010 50V
C40	QCF11HP-103	CER.CAPACITOR	0.010 50V
C41	QCF11HP-103	CER.CAPACITOR	0.010 50V
C42	QCF11HP-103	CER.CAPACITOR	0.010 50V
C43	QCF11HP-103	CER.CAPACITOR	0.010 50V
C44	QCF11HP-103	CER.CAPACITOR	0.010 50V
C45	QER41CM-476	E CAP	47 16V
C46	QCF11HP-103	CER.CAPACITOR	0.010 50V
C47	QCF11HP-103	CER.CAPACITOR	0.010 50V
C48	QCF11HP-103	CER.CAPACITOR	0.010 50V
C49	QCF11HP-103	CER.CAPACITOR	0.010 50V
C50	QCF11HP-103	CER.CAPACITOR	0.010 50V
C51	QCF11HP-103	CER.CAPACITOR	0.010 50V
C52	QCF11HP-103	CER.CAPACITOR	0.010 50V
C53	QCF11HP-103	CER.CAPACITOR	0.010 50V
C54	QCF11HP-103	CER.CAPACITOR	0.010 50V
C55	QCF11HP-103	CER.CAPACITOR	0.010 50V
C56	QCF11HP-103	CER.CAPACITOR	0.010 50V
C57	QCF11HP-103	CER.CAPACITOR	0.010 50V
C58	QCF11HP-103	CER.CAPACITOR	0.010 50V
C59	QER41CM-106	E CAP	10 16V
C60	QER41HM-105	E CAP	1.0 50V
C61	QER41HM-105	E CAP	1.0 50V
C62	QER41HM-105	E CAP	1.0 50V
C63	QER41HM-105	E CAP	1.0 50V
C64	QCF11HP-103	CER.CAPACITOR	0.010 50V
C65	QER41CM-476	E CAP	47 16V
C66	QER41CM-106	E CAP	10 16V
C67	QER41CM-106	E CAP	10 16V
C68	QER41CM-106	E CAP	10 16V
C69	QER41CM-106	E CAP	10 16V
C70	QCF11HP-103	CER.CAPACITOR	0.010 50V
C71	QCF11HP-103	CER.CAPACITOR	0.010 50V
C72	QEPA1HM-105	NP CAP	1.0 50V
C73	QEPA1HM-105	NP CAP	1.0 50V
C74	QER41CM-476	E CAP	47 16V
C75	QER41CM-476	E CAP	47 16V
C76	QCF11HP-103	CER.CAPACITOR	0.010 50V
C77	QCF11HP-103	CER.CAPACITOR	0.010 50V
C78	QCF11HP-103	CER.CAPACITOR	0.010 50V
C79	QCF11HP-103	CER.CAPACITOR	0.010 50V
C80	QCF11HP-103	CER.CAPACITOR	0.010 50V
C81	QER41CM-106	E CAP	10 16V
C84	QEPA1HM-105	NP CAP	1.0 50V
C85	QEPA1HM-105	NP CAP	1.0 50V
C86	QEPA1HM-105	NP CAP	1.0 50V
C88	QFN41HJ-103	MY CAP	0.01 50V
C89	QER41CM-476	E CAP	47 16V
C90	QER41CM-476	E CAP	47 16V
C91	QER41CM-476	E CAP	47 16V
C92	QCF11HP-103	CER.CAPACITOR	0.010 50V
C93	QER41CM-476	E CAP	47 16V
C98	QER41CM-476	E CAP	47 16V
C99	QER41CM-476	E CAP	47 16V
C100	QCS11HJ-121	C CAP	120P 50V
C101	QCS11HJ-560	C CAP	56P 50V
C102	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C103	QCF11HP-103	CER.CAPACITOR	0.010 50V
C104	QEPA1CM-106	NP CAP	10 16V
C105	QCF11HP-103	CER.CAPACITOR	0.010 50V
C106	QCF11HP-103	CER.CAPACITOR	0.010 50V
C107	QCF11HP-103	CER.CAPACITOR	0.010 50V
C108	QER41CM-476	E CAP	47 16V
C109	QCS11HJ-121	C CAP	120P 50V
C110	QCS11HJ-560	C CAP	56P 50V
C111	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C112	QCF11HP-103	CER.CAPACITOR	0.010 50V
C113	QER41CM-476	E CAP	47 16V
C114	QCF11HP-103	CER.CAPACITOR	0.010 50V
C115	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C116	QCF11HP-103	CER.CAPACITOR	0.010 50V
C117	QCF11HP-103	CER.CAPACITOR	0.010 50V (U)
C118	QCF11HP-103	CER.CAPACITOR	0.010 50V
C119	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C120	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C121	QCF11HP-103	CER.CAPACITOR	0.010 50V
C122	QCT25CH-390	C CAP	39P 50V
C123	QCT25UJ-151	C CAP	150P 50V (U)
	QCT25UJ-121	C CAP	120P 50V (E)
C124	QER41CM-476	E CAP	47 16V
C125	QCS11HJ-820	C CAP	82P 50V (U)
	QCS11HJ-270	C CAP	27P 50V (E)
C126	QCS11HJ-560	C CAP	56P 50V
C129	QCS11HJ-100	CER.CAPACITOR	10P 50V
C130	QER41CM-476	E CAP	47 16V

Symbol No.	Part No.	Part Name	Description	
C131	QER41CM-106	E CAP	10	16V
C132	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C133	QCF11HP-103	CER.CAPACITOR	0.010	50V
C134	QCF11HP-103	CER.CAPACITOR	0.010	50V
C135	QER41CM-476	E CAP	47	16V
C136	QER41CM-476	E CAP	47	16V
C137	QCF11HP-103	CER.CAPACITOR	0.010	50V
C138	QCF11HP-103	CER.CAPACITOR	0.010	50V
C139	QCF11HP-103	CER.CAPACITOR	0.010	50V
C140	QCF11HP-103	CER.CAPACITOR	0.010	50V
C141	QCF11HP-103	CER.CAPACITOR	0.010	50V
C142	QCF11HP-103	CER.CAPACITOR	0.010	50V
C144	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C145	QER41CM-476	E CAP	47	16V
C146	QER41CM-476	E CAP	47	16V
C147	QCF11HP-103	CER.CAPACITOR	0.010	50V
C148	QER41CM-476	E CAP	47	16V
C149	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C150	QER41CM-476	E CAP	47	16V
C152	QCF11HP-103	CER.CAPACITOR	0.010	50V
C153	QER41CM-476	E CAP	47	16V
C154	QCF11HP-103	CER.CAPACITOR	0.010	50V
C155	QER41CM-476	E CAP	47	16V
C156	QCF11HP-103	CER.CAPACITOR	0.010	50V
C157	QER41CM-476	E CAP	47	16V
C158	QER41CM-476	E CAP	47	16V
C159	QER41CM-476	E CAP	47	16V
C160	QER41CM-476	E CAP	47	16V
C161	QCF11HP-103	CER.CAPACITOR	0.010	50V
C162	QER41CM-476	E CAP	47	16V
C163	QCF11HP-103	CER.CAPACITOR	0.010	50V
C164	QER41CM-476	E CAP	47	16V
C165	QER41CM-476	E CAP	47	16V
C166	QER41CM-476	E CAP	47	16V
C167	QER41CM-476	E CAP	47	16V
C168	QCF11HP-103	CER.CAPACITOR	0.010	50V
C170	QER41CM-476	E CAP	47	16V
C171	QER41CM-476	E CAP	47	16V
C172	QER41CM-476	E CAP	47	16V
C173	QCF11HP-103	CER.CAPACITOR	0.010	50V
C174	QCS11HJ-470	CER.CAPACITOR	47P	50V
C175	QCS11HJ-470	CER.CAPACITOR	47P	50V
C176	QER41CM-476	E CAP	47	16V
C177	QCS11HJ-180	C CAP	18P	50V
C178	QCS11HJ-180	C CAP	18P	50V
C179	QER41CM-476	E CAP	47	16V
C180	QER41CM-476	E CAP	47	16V
C181	QER41CM-106	E CAP	10	16V
C182	QER41CM-106	E CAP	10	16V
C183	QER41CM-106	E CAP	10	16V
C184	QCF11HP-103	CER.CAPACITOR	0.010	50V
C185	QER41CM-106	E CAP	10	16V
C187	QEPA1CM-106	NP CAP	10	16V
C188	QER41CM-476	E CAP	47	16V
C189	QEPA1HM-105	NP CAP	1.0	50V
C190	QER41CM-476	E CAP	47	16V
C191	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C192	QCF11HP-103	CER.CAPACITOR	0.010	50V
C193	QCF11HP-103	CER.CAPACITOR	0.010	50V
C194	QCF11HP-103	CER.CAPACITOR	0.010	50V

Symbol No.	Part No.	Part Name	Description	
C195	QCF11HP-103	CER.CAPACITOR	0.010	50V
C196	QCF11HP-103	CER.CAPACITOR	0.010	50V
C197	QEPA1HM-105	NP CAP	1.0	50V
C199	QER41CM-476	E CAP	47	16V
C200	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C201	QCF11HP-103	CER.CAPACITOR	0.010	50V
C202	QER41CM-476	E CAP	47	16V
C203	QCF11HP-103	CER.CAPACITOR	0.010	50V
C204	QCF11HP-103	CER.CAPACITOR	0.010	50V
C205	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C206	QCF11HP-103	CER.CAPACITOR	0.010	50V (U)
C207	QCF11HP-103	CER.CAPACITOR	0.010	50V
C208	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C209	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C210	QCF11HP-103	CER.CAPACITOR	0.010	50V
C211	QCT25CH-390	C CAP	39P	50V
C212	QCT25UJ-151	C CAP	150P	50V (U)
	QCT25UJ-121	C CAP	120P	50V (E)
C213	QCS11HJ-820	C CAP	82P	50V (U)
	QCS11HJ-270	C CAP	27P	50V (E)
C214	QCS11HJ-560	C CAP	56P	50V
C215	QCF11HP-103	CER.CAPACITOR	0.010	50V
C216	QCF11HP-103	CER.CAPACITOR	0.010	50V
C217	QEPA1HM-105	NP CAP	1.0	50V
C218	QER41CM-476	E CAP	47	16V
C219	QEPA0JM-476	NP CAP	47	6.3V
C220	QER41CM-476	E CAP	47	16V
C221	QER41CM-476	E CAP	47	16V
C222	QER41CM-476	E CAP	47	16V
C223	QEPA0JM-476	NP CAP	47	6.3V
C224	QER41CM-476	E CAP	47	16V
C225	QER41CM-476	E CAP	47	16V
C226	QCS11HJ-100	CER.CAPACITOR	10P	50V
C227	QEPA1CM-106	NP CAP	10	16V
C228	QER41CM-476	E CAP	47	16V
C229	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C230	QER41CM-476	E CAP	47	16V
C231	QCF11HP-103	CER.CAPACITOR	0.010	50V
C232	QCF11HP-103	CER.CAPACITOR	0.010	50V
C233	QER41HM-105	E CAP	1.0	50V
C234	QCF11HP-103	CER.CAPACITOR	0.010	50V
C235	QCF11HP-103	CER.CAPACITOR	0.010	50V
C236	QER41CM-476	E CAP	47	16V
C237	QER41CM-476	E CAP	47	16V
C240	QEPA1CM-475	NP CAP	4.7	16V
C241	QER41CM-476	E CAP	47	16V
C243	QER41HM-105	E CAP	1.0	50V
C245	QEPA1CM-475	NP CAP	4.7	16V
C246	QER41CM-476	E CAP	47	16V
C247	QER41CM-476	E CAP	47	16V
C249	QCF11HP-103	CER.CAPACITOR	0.010	50V
C250	QCF11HP-103	CER.CAPACITOR	0.010	50V
C300	QCF11HP-103	CER.CAPACITOR	0.010	50V (E)
C301	QCF11HP-103	CER.CAPACITOR	0.010	50V
C302	QCF11HP-103	CER.CAPACITOR	0.010	50V
C303	QCF11HP-103	CER.CAPACITOR	0.010	50V
C304	QCF11HP-103	CER.CAPACITOR	0.010	50V
C305	QCF11HP-103	CER.CAPACITOR	0.010	50V
C306	QCF11HP-103	CER.CAPACITOR	0.010	50V
C307	QCF11HP-103	CER.CAPACITOR	0.010	50V

(KEY)

Symbol No.	Part No.	Part Name	Description
C308	QCF11HP-103	CER.CAPACITOR	0.010 50V
C309	QCF11HP-103	CER.CAPACITOR	0.010 50V
C310	QCF11HP-103	CER.CAPACITOR	0.010 50V
C311	QCF11HP-103	CER.CAPACITOR	0.010 50V (E)
C312	QCF11HP-103	CER.CAPACITOR	0.010 50V
C313	QCF11HP-103	CER.CAPACITOR	0.010 50V
C314	QEPA1CM-106	NP CAP	10 16V
C315	QCF11HP-103	CER.CAPACITOR	0.010 50V
C317	QCF11HP-103	CER.CAPACITOR	0.010 50V
C320	QCF11HP-103	CER.CAPACITOR	0.010 50V
C321	QCS11HJ-821	C CAP	820P 50V
C322	QCF11HP-103	CER.CAPACITOR	0.010 50V
C324	QER41HM-105	E CAP	1.0 50V
C325	QEPA1HM-105	NP CAP	1.0 50V
C326	QEPA1CM-106	NP CAP	10 16V
C327	QEPA1CM-106	NP CAP	10 16V
C328	QEPA1HM-105	NP CAP	1.0 50V
C340	QCT25CH-221	C CAP	220P 50V
C341	QCT25CH-221	C CAP	220P 50V
C342	QEPA1HM-105	NP CAP	1.0 50V
C343	QCS11HJ-101	CER.CAPACITOR	100P 50V (U)
	QCS11HJ-181	C CAP	180P 50V (E)
C344	QER41CM-476	E CAP	47 16V
C400	QCS11HJ-220	C CAP	22P 50V
C401	QCS11HJ-220	C CAP	22P 50V
L1	SCV0331-220	PEAKING COIL	22μH
L2	SCV0331-560	PEAKING COIL	56μH
L3	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)
L4	SCV0331-220	PEAKING COIL	22μH
L5	SCV0331-560	PEAKING COIL	56μH
L6	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)
DL1	SCV1827-001	DELAY LINE	0.3nsec
DL2	SCV1826-001	DELAY LINE	0.12nsec
DL3	SCV1827-001	DELAY LINE	0.3nsec
DL4	SCV1826-001	DELAY LINE	0.12nsec
DL5	SCV1827-001	DELAY LINE	0.3nsec
J1	SCV1147-001	CONNECTOR	EXT/FILL Y
CN5	SCV1704-200	CONNECTOR	200 pin
CN7	SCV1227-002	CONNECTOR	2 pin
CN15	SCV1929-100	CONNECTOR	100 pin
	CBM1-4	**CBMC4493-00A**	**COMPARATOR CBM**
IC1	RC1496M	I.C.(M)	RAYTHEON
Q1	2SC2814F4.5	TRANSISTOR	SANYO
Q2	2SC2814F4.5	TRANSISTOR	SANYO

Symbol No.	Part No.	Part Name	Description
R1	NRSA02J-221	MGR	220 1/10W
R2	NRSA02J-221	MGR	220 1/10W
R3	NRSA02J-122	MGR	1.2K 1/10W
R4	NRSA02J-392	MGR	3.9K 1/10W
R5	NRSA02J-122	MGR	1.2K 1/10W
R6	NRSA02J-221	MGR	220 1/10W
R7	NRSA02J-221	MGR	220 1/10W
R8	NRSA02J-472	MGR	4.7K 1/10W
R9	NRSA02J-472	MGR	4.7K 1/10W
R10	NRSA02J-221	MGR	220 1/10W
R11	NRSA02J-221	MGR	220 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCF21EZ-104	C CAP	0.10 25V
C3	NCF21EZ-104	C CAP	0.10 25V
C4	NCF21EZ-104	C CAP	0.10 25V
C5	NCF21EZ-104	C CAP	0.10 25V
	CBM5,7	**CBMC4494-00A**	**AND CBM**
Q1	2SC2812L5.6	TRANSISTOR	SANYO
Q2	2SA1179M5.6	TRANSISTOR	SANYO
Q3	2SA1179M5.6	TRANSISTOR	SANYO
Q4	2SC2812L5.6	TRANSISTOR	SANYO
Q5	2SC2812L5.6	TRANSISTOR	SANYO
R1	NRSA02J-471	MGR	470 1/10W
R2	NRSA02J-222	MGR	2.2K 1/10W
R3	NRSA02J-221	MGR	220 1/10W
R4	NRSA02J-222	MGR	2.2K 1/10W
R5	NRSA02J-221	MGR	220 1/10W
R6	NRSA02J-222	MGR	2.2K 1/10W
R7	NRSA02J-471	MGR	470 1/10W
R8	NRSA02J-221	MGR	220 1/10W
R9	NRSA02J-222	MGR	2.2K 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCF21EZ-104	C CAP	0.10 25V
	CBM6,8	**CBMC4495-00A**	**OR CBM**
Q1	2SA1179M5.6	TRANSISTOR	SANYO
Q2	2SC2812L5.6	TRANSISTOR	SANYO
Q3	2SC2812L5.6	TRANSISTOR	SANYO
Q4	2SA1179M5.6	TRANSISTOR	SANYO
Q5	2SA1179M5.6	TRANSISTOR	SANYO
R1	NRSA02J-471	MGR	470 1/10W
R2	NRSA02J-222	MGR	2.2K 1/10W
R3	NRSA02J-221	MGR	220 1/10W
R4	NRSA02J-222	MGR	2.2K 1/10W
R5	NRSA02J-221	MGR	220 1/10W
R6	NRSA02J-222	MGR	2.2K 1/10W
R7	NRSA02J-471	MGR	470 1/10W
R8	NRSA02J-221	MGR	220 1/10W
R9	NRSA02J-222	MGR	2.2K 1/10W

Symbol No.	Part No.	Part Name	Description
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCF21EZ-104	C CAP	0.10 25V
	CBM9,10	**CBMC4489-00A VIDEO AMP CBM**	
Q1	2SC2814F4.5	TRANSISTOR	SANYO
Q2	2SK198(Q.R)	FET	MATSUSHITA
Q3	2SC2814F4.5	TRANSISTOR	SANYO
Q4	2SC2814F4.5	TRANSISTOR	SANYO
Q5	2SC2814F4.5	TRANSISTOR	SANYO
D1	MA152K	DIODE	MATSUSHITA
R1	NRSA02J-331	MGR	330 1/10W
R2	NRSA02J-472	MGR	4.7K 1/10W
R3	NRSA02J-223	MGR	22K 1/10W
R4	NRSA02J-105	MGR	1.0M 1/10W
R5	NRSA02J-822	MGR	8.2K 1/10W
R6	NRSA02J-472	MGR	4.7K 1/10W
R7	NRSA02J-102	MGR	1.0K 1/10W
R8	NRSA02J-122	MGR	1.2K 1/10W
R9	NRSA02J-152	MGR	1.5K 1/10W
R10	NRSA02J-750	MGR	75 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
C2	NCF21EZ-104	C CAP	0.10 25V

7.10-N Y/C SEPA board assembly list 1 0
for U version 1 0 ☐☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	CXL1009P	I.C.(M)	SONY
IC2	CXL1009P	I.C.(M)	SONY
IC3	AN608P	I.C.(M)	MATSUSHITA
IC4	AN608P	I.C.(M)	MATSUSHITA
IC5	AN608P	I.C.(M)	MATSUSHITA
IC6	CXA1413L	I.C.(M)	SONY
IC7	AN608P	I.C.(M)	MATSUSHITA
IC11	CXL1009P	I.C.(M)	SONY
IC12	CXL1009P	I.C.(M)	SONY
IC13	AN608P	I.C.(M)	MATSUSHITA
IC14	AN608P	I.C.(M)	MATSUSHITA
IC15	AN608P	I.C.(M)	MATSUSHITA
IC16	CXA1413L	I.C.(M)	SONY
IC17	AN608P	I.C.(M)	MATSUSHITA
IC43	TC4053BP	I.C.(M)	TOSHIBA
IC44	TC4053BP	I.C.(M)	TOSHIBA
IC49	NJM7809FA	I.C.(M)	JRC
IC50	TA78L005AP	I.C.(M)	TOSHIBA
IC51	NJM7809FA	I.C.(M)	JRC
IC52	TA78L005AP	I.C.(M)	TOSHIBA
IC53	TC40H004P	I.C.(M)	TOSHIBA
IC54	TA7347P	I.C.(M)	TOSHIBA
IC55	TA7347P	I.C.(M)	TOSHIBA
IC56	TA7347P	I.C.(M)	TOSHIBA
IC57	TA7347P	I.C.(M)	TOSHIBA
IC58	TC4051BP	I.C.(M)	TOSHIBA
IC59	TC4051BP	I.C.(M)	TOSHIBA
Q1	2SC829(C)	TRANSISTOR	MATSUSHITA
Q2	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q3	2SC829(C)	TRANSISTOR	MATSUSHITA
Q4	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q5	2SC829(C)	TRANSISTOR	MATSUSHITA
Q6	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q7	2SC829(C)	TRANSISTOR	MATSUSHITA
Q8	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q9	2SC829(C)	TRANSISTOR	MATSUSHITA
Q10	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q11	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q12	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q13	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q14	2SC829(C)	TRANSISTOR	MATSUSHITA
Q15	2SC829(C)	TRANSISTOR	MATSUSHITA
Q16	2SC829(C)	TRANSISTOR	MATSUSHITA
Q17	2SC829(C)	TRANSISTOR	MATSUSHITA
Q18	2SC829(C)	TRANSISTOR	MATSUSHITA
Q19	2SC829(C)	TRANSISTOR	MATSUSHITA
Q20	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q21	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q22	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q101	2SC829(C)	TRANSISTOR	MATSUSHITA
Q102	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q103	2SC829(C)	TRANSISTOR	MATSUSHITA
Q104	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q105	2SC829(C)	TRANSISTOR	MATSUSHITA
Q106	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q107	2SC829(C)	TRANSISTOR	MATSUSHITA
Q108	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q109	2SC829(C)	TRANSISTOR	MATSUSHITA

(Y/C SEPA, U version)

Symbol No.	Part No.	Part Name	Description
Q110	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q111	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q112	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q113	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q114	2SC829(C)	TRANSISTOR	MATSUSHITA
Q115	2SC829(C)	TRANSISTOR	MATSUSHITA
Q116	2SC829(C)	TRANSISTOR	MATSUSHITA
Q117	2SC829(C)	TRANSISTOR	MATSUSHITA
Q118	2SC829(C)	TRANSISTOR	MATSUSHITA
Q119	2SC829(C)	TRANSISTOR	MATSUSHITA
Q120	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q121	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q122	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q401	2SC829(C)	TRANSISTOR	MATSUSHITA
Q402	2SC829(C)	TRANSISTOR	MATSUSHITA
Q403	2SC829(C)	TRANSISTOR	MATSUSHITA
Q404	2SC829(C)	TRANSISTOR	MATSUSHITA
Q407	2SC829(C)	TRANSISTOR	MATSUSHITA
Q408	2SC829(C)	TRANSISTOR	MATSUSHITA
Q500	2SC829(C)	TRANSISTOR	MATSUSHITA
Q501	2SC829(C)	TRANSISTOR	MATSUSHITA
Q502	2SC829(C)	TRANSISTOR	MATSUSHITA
Q503	2SC829(C)	TRANSISTOR	MATSUSHITA
R1	QRD161J-393	CR	39K 1/6W
R2	QRD161J-473	CR	47K 1/6W
R3	QRD161J-472	CR	4.7K 1/6W
R4	QRD161J-471	CR	470 1/6W
R5	QRD161J-102	CR	1.0K 1/6W
R6	QRD161J-221	CR	220 1/6W
R7	QRD161J-472	CR	4.7K 1/6W
R8	QRD161J-104	CR	100K 1/6W
R9	QRD161J-224	CR	220K 1/6W
R10	QRD161J-472	CR	4.7K 1/6W
R11	QRD161J-393	CR	39K 1/6W
R12	QRD161J-473	CR	47K 1/6W
R13	QRD161J-102	CR	1.0K 1/6W
R14	QRD161J-102	CR	1.0K 1/6W
R15	QRD161J-472	CR	4.7K 1/6W
R16	QRD161J-393	CR	39K 1/6W
R17	QRD161J-223	CR	22K 1/6W
R18	QRD161J-122	CR	1.2K 1/6W
R19	QRD161J-122	CR	1.2K 1/6W
R20	QRD161J-472	CR	4.7K 1/6W
R21	QRD161J-104	CR	100K 1/6W
R22	QRD161J-224	CR	220K 1/6W
R23	QRD161J-102	CR	1.0K 1/6W
R24	QRD161J-102	CR	1.0K 1/6W
R25	QRD161J-102	CR	1.0K 1/6W
R26	QRD161J-102	CR	1.0K 1/6W
R27	QRD161J-102	CR	1.0K 1/6W
R28	QRD161J-102	CR	1.0K 1/6W
R29	QRD161J-472	CR	4.7K 1/6W
R30	QRD161J-473	CR	47K 1/6W
R31	QRD161J-273	CR	27K 1/6W
R32	QRD161J-102	CR	1.0K 1/6W
R33	QRD161J-102	CR	1.0K 1/6W
R34	QRD161J-472	CR	4.7K 1/6W
R35	QRD161J-223	CR	22K 1/6W
R36	QRD161J-563	CR	56K 1/6W
R37	QRD161J-222	CR	2.2K 1/6W
R38	QRD161J-102	CR	1.0K 1/6W
R39	QRD161J-102	CR	1.0K 1/6W
R40	QRD161J-473	CR	47K 1/6W
R41	QRD161J-473	CR	47K 1/6W
R42	QRD161J-102	CR	1.0K 1/6W
R43	QRD161J-102	CR	1.0K 1/6W
R44	QRD161J-102	CR	1.0K 1/6W
R45	QRD161J-471	CR	470 1/6W
R47	QRD161J-102	CR	1.0K 1/6W
R48	QRD161J-333	CR	33K 1/6W
R49	QRD161J-333	CR	33K 1/6W
R50	QRD161J-102	CR	1.0K 1/6W
R51	QRD161J-222	CR	2.2K 1/6W
R52	QRD161J-221	CR	220 1/6W
R53	QRD161J-472	CR	4.7K 1/6W
R54	QRD161J-393	CR	39K 1/6W
R55	QRD161J-473	CR	47K 1/6W
R56	QRD161J-102	CR	1.0K 1/6W
R57	QRD161J-822	CR	8.2K 1/6W
R58	QRD161J-472	CR	4.7K 1/6W
R59	QRD161J-393	CR	39K 1/6W
R60	QRD161J-223	CR	22K 1/6W
R61	QRD161J-122	CR	1.2K 1/6W
R62	QRD161J-122	CR	1.2K 1/6W
R63	QRD161J-472	CR	4.7K 1/6W
R64	QRD161J-221	CR	220 1/6W
R65	QRD161J-332	CR	3.3K 1/6W
R66	QRD161J-332	CR	3.3K 1/6W
R67	QRD161J-332	CR	3.3K 1/6W
R68	QRD161J-332	CR	3.3K 1/6W
R69	QRD161J-472	CR	4.7K 1/6W
R101	QRD161J-393	CR	39K 1/6W
R102	QRD161J-473	CR	47K 1/6W
R103	QRD161J-472	CR	4.7K 1/6W
R104	QRD161J-471	CR	470 1/6W
R105	QRD161J-102	CR	1.0K 1/6W
R106	QRD161J-221	CR	220 1/6W
R107	QRD161J-472	CR	4.7K 1/6W
R108	QRD161J-104	CR	100K 1/6W
R109	QRD161J-224	CR	220K 1/6W
R110	QRD161J-472	CR	4.7K 1/6W
R111	QRD161J-393	CR	39K 1/6W
R112	QRD161J-473	CR	47K 1/6W
R113	QRD161J-102	CR	1.0K 1/6W
R114	QRD161J-102	CR	1.0K 1/6W
R115	QRD161J-472	CR	4.7K 1/6W
R116	QRD161J-393	CR	39K 1/6W
R117	QRD161J-223	CR	22K 1/6W
R118	QRD161J-122	CR	1.2K 1/6W
R119	QRD161J-122	CR	1.2K 1/6W
R120	QRD161J-472	CR	4.7K 1/6W
R121	QRD161J-104	CR	100K 1/6W
R122	QRD161J-224	CR	220K 1/6W
R123	QRD161J-102	CR	1.0K 1/6W
R124	QRD161J-102	CR	1.0K 1/6W
R125	QRD161J-102	CR	1.0K 1/6W
R126	QRD161J-102	CR	1.0K 1/6W

Symbol No.	Part No.	Part Name	Description
R127	QRD161J-102	CR	1.0K 1/6W
R128	QRD161J-102	CR	1.0K 1/6W
R129	QRD161J-472	CR	4.7K 1/6W
R130	QRD161J-473	CR	47K 1/6W
R131	QRD161J-273	CR	27K 1/6W
R132	QRD161J-102	CR	1.0K 1/6W
R133	QRD161J-102	CR	1.0K 1/6W
R134	QRD161J-472	CR	4.7K 1/6W
R135	QRD161J-223	CR	22K 1/6W
R136	QRD161J-563	CR	56K 1/6W
R137	QRD161J-222	CR	2.2K 1/6W
R138	QRD161J-102	CR	1.0K 1/6W
R139	QRD161J-102	CR	1.0K 1/6W
R140	QRD161J-473	CR	47K 1/6W
R141	QRD161J-473	CR	47K 1/6W
R142	QRD161J-102	CR	1.0K 1/6W
R143	QRD161J-102	CR	1.0K 1/6W
R144	QRD161J-102	CR	1.0K 1/6W
R145	QRD161J-471	CR	470 1/6W
R147	QRD161J-102	CR	1.0K 1/6W
R148	QRD161J-333	CR	33K 1/6W
R149	QRD161J-333	CR	33K 1/6W
R150	QRD161J-102	CR	1.0K 1/6W
R151	QRD161J-222	CR	2.2K 1/6W
R152	QRD161J-221	CR	220 1/6W
R153	QRD161J-472	CR	4.7K 1/6W
R154	QRD161J-393	CR	39K 1/6W
R155	QRD161J-473	CR	47K 1/6W
R156	QRD161J-102	CR	1.0K 1/6W
R157	QRD161J-822	CR	8.2K 1/6W
R158	QRD161J-472	CR	4.7K 1/6W
R159	QRD161J-393	CR	39K 1/6W
R160	QRD161J-223	CR	22K 1/6W
R161	QRD161J-122	CR	1.2K 1/6W
R162	QRD161J-122	CR	1.2K 1/6W
R163	QRD161J-472	CR	4.7K 1/6W
R164	QRD161J-221	CR	220 1/6W
R165	QRD161J-332	CR	3.3K 1/6W
R166	QRD161J-332	CR	3.3K 1/6W
R167	QRD161J-332	CR	3.3K 1/6W
R168	QRD161J-332	CR	3.3K 1/6W
R169	QRD161J-472	CR	4.7K 1/6W
R401	QRD161J-221	CR	220 1/6W
R402	QRD161J-472	CR	4.7K 1/6W
R405	QRD161J-221	CR	220 1/6W
R406	QRD161J-472	CR	4.7K 1/6W
R409	QRD161J-221	CR	220 1/6W
R410	QRD161J-472	CR	4.7K 1/6W
R411	QRD161J-273	CR	27K 1/6W
R412	QRD161J-223	CR	22K 1/6W
R413	QRD161J-221	CR	220 1/6W
R414	QRD161J-472	CR	4.7K 1/6W
R415	QRD161J-273	CR	27K 1/6W
R416	QRD161J-223	CR	22K 1/6W
R425	QRD161J-221	CR	220 1/6W
R426	QRD161J-472	CR	4.7K 1/6W
R429	QRD161J-221	CR	220 1/6W
R430	QRD161J-472	CR	4.7K 1/6W
R433	QRD161J-0R0	CR	0 1/6W

Symbol No.	Part No.	Part Name	Description
R434	QRD161J-331	CR	330 1/6W
R435	QRD161J-0R0	CR	0 1/6W
R436	QRD161J-331	CR	330 1/6W
R441	QRD161J-103	CR	10K 1/6W
R442	QRD161J-103	CR	10K 1/6W
R443	QRD161J-103	CR	10K 1/6W
R444	QRD161J-103	CR	10K 1/6W
R445	QRD161J-103	CR	10K 1/6W
R446	QRD161J-103	CR	10K 1/6W
R447	QRD161J-103	CR	10K 1/6W
R448	QRD161J-103	CR	10K 1/6W
R449	QRD161J-103	CR	10K 1/6W
R450	QRD161J-103	CR	10K 1/6W
R451	QRD161J-105	CR	1.0M 1/6W
R452	QRD161J-0R0	CR	0 1/6W
R453	QRD161J-0R0	CR	0 1/6W
R460	QRD161J-103	CR	10K 1/6W
R461	QRD161J-103	CR	10K 1/6W
R500	QRD161J-821	CR	820 1/6W
R501	QRD161J-393	CR	39K 1/6W
R502	QRD161J-273	CR	27K 1/6W
R503	QRD161J-821	CR	820 1/6W
R504	QRD161J-472	CR	4.7K 1/6W
R600	QRD161J-821	CR	820 1/6W
R601	QRD161J-393	CR	39K 1/6W
R602	QRD161J-273	CR	27K 1/6W
R603	QRD161J-821	CR	820 1/6W
R604	QRD161J-472	CR	4.7K 1/6W
VR1	QVPB613-103	TRIM.RESISTOR	10K DC 1
VR2	QVPB613-502	TRIM.RESISTOR	5K BIAS 1
VR3	QVPB613-501	TRIM.RESISTOR	500 1H PHASE 1
VR4	QVPB613-103	TRIM.RESISTOR	10K DC 2
VR5	QVPB613-502	TRIM.RESISTOR	5K BIAS 2
VR6	QVPB613-501	TRIM.RESISTOR	500 2H PHASE 1
VR7	QVPB613-502	TRIM.RESISTOR	5K C LEV 1
VR8	QVPB613-502	TRIM.RESISTOR	5K C LEV 2
VR9	QVPB613-502	TRIM.RESISTOR	5K C LEV 3
VR10	QVPB613-501	TRIM.RESISTOR	500 COMB DELAY1
VR11	QVPB613-102	TRIM.RESISTOR	1K Y LEV 1
VR12	QVPB613-102	TRIM.RESISTOR	1K COMB LEV 1
VR101	QVPB613-103	TRIM.RESISTOR	10K DC 3
VR102	QVPB613-502	TRIM.RESISTOR	5K BIAS 3
VR103	QVPB613-501	TRIM.RESISTOR	500 1H PHASE 2
VR104	QVPB613-103	TRIM.RESISTOR	10K DC 4
VR105	QVPB613-502	TRIM.RESISTOR	5K BIAS 4
VR106	QVPB613-501	TRIM.RESISTOR	500 2H PHASE 2
VR107	QVPB613-502	TRIM.RESISTOR	5K C LEV 4
VR108	QVPB613-502	TRIM.RESISTOR	5K C LEV 5
VR109	QVPB613-502	TRIM.RESISTOR	5K C LEV 6
VR110	QVPB613-501	TRIM.RESISTOR	500 COMB DELAY2
VR111	QVPB613-102	TRIM.RESISTOR	1K Y LEV 2
VR112	QVPB613-102	TRIM.RESISTOR	1K COMB LEV 2
VR500	QVPB613-501	TRIM.RESISTOR	500 C GAIN 1
VR501	QVPB613-501	TRIM.RESISTOR	500 C GAIN 2
C1	QEPA0JM-476	NP CAP	47 6.3V
C2	QCT25UJ-100	C CAP	10P 50V

(Y/C SEPA, U version)

Symbol No.	Part No.	Part Name	Description	
C3	QCS11HJ-150	C CAP	15P	50V
C4	QCT25UJ-330	C CAP	33P	50V
C5	QEPA0JM-476	NP CAP	47	6.3V
C6	QFN41HJ-224	MY CAP	0.22	50V
C7	QER41CM-476	E CAP	47	16V
C8	QEJ41CM-335	T CAP	3.3	16V
C9	QEJ41CM-335	T CAP	3.3	16V
C10	QEJ41CM-335	T CAP	3.3	16V
C11	QFN41HJ-473	MY CAP	0.047	50V
C12	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C13	QER41CM-476	E CAP	47	16V
C14	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C15	QER41CM-476	E CAP	47	16V
C16	QER41CM-476	E CAP	47	16V
C17	QCS11HJ-120	C CAP	12P	50V
C18	QCT25UJ-330	C CAP	33P	50V
C19	QCT25UJ-270	C CAP	27P	50V
C20	QER41CM-476	E CAP	47	16V
C21	QCT25CH-180	C CAP	18P	50V
C22	QCT25CH-121	C CAP	120P	50V
C23	QFN41HJ-102	MY CAP	1000P	50V
C24	QFN41HJ-224	MY CAP	0.22	50V
C25	QER41CM-476	E CAP	47	16V
C26	QEJ41CM-335	T CAP	3.3	16V
C27	QEJ41CM-335	T CAP	3.3	16V
C28	QEJ41CM-335	T CAP	3.3	16V
C29	QFN41HJ-473	MY CAP	0.047	50V
C30	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C31	QER41CM-476	E CAP	47	16V
C32	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C33	QER41CM-476	E CAP	47	16V
C34	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C35	QCS11HJ-120	C CAP	12P	50V
C36	QCT25UJ-330	C CAP	33P	50V
C37	QCT25UJ-270	C CAP	27P	50V
C38	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C39	QCT25CH-180	C CAP	18P	50V
C40	QCT25CH-101	C CAP	100P	50V
C41	QCT25UJ-680	C CAP	68P	50V
C42	QCT25UJ-680	C CAP	68P	50V
C43	QCT25CH-820	C CAP	82P	50V
C44	QCT25UJ-470	C CAP	47P	50V
C45	QFN41HJ-103	MY CAP	0.010	50V
C46	QFN41HJ-223	MY CAP	0.022	50V
C47	QCT25UJ-680	C CAP	68P	50V
C48	QCT25UJ-680	C CAP	68P	50V
C49	QCT25CH-820	C CAP	82P	50V
C50	QCT25UJ-470	C CAP	47P	50V
C51	QFN41HJ-103	MY CAP	0.010	50V
C52	QFN41HJ-223	MY CAP	0.022	50V
C53	QCT25UJ-680	C CAP	68P	50V
C54	QCT25UJ-680	C CAP	68P	50V
C55	QCT25CH-820	C CAP	82P	50V
C56	QCT25UJ-470	C CAP	47P	50V
C57	QFN41HJ-103	MY CAP	0.010	50V
C58	QFN41HJ-223	MY CAP	0.022	50V
C59	QFN41HJ-103	MY CAP	0.010	50V
C60	QFN41HJ-103	MY CAP	0.010	50V
C61	QFN41HJ-103	MY CAP	0.010	50V

Symbol No.	Part No.	Part Name	Description	
C62	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C63	QER41CM-476	E CAP	47	16V
C65	QER41CM-476	E CAP	47	16V
C66	QCT25CH-270	C CAP	27P	50V
C67	QCT25CH-270	C CAP	27P	50V
C68	QEPA0JM-476	NP CAP	47	6.3V
C69	QFN41HJ-223	MY CAP	0.022	50V
C71	QER41CM-476	E CAP	47	16V
C72	QER41CM-476	E CAP	47	16V
C73	QER41CM-476	E CAP	47	16V
C74	QER41CM-476	E CAP	47	16V
C75	QER41CM-476	E CAP	47	16V
C76	QER41CM-476	E CAP	47	16V
C101	QEPA0JM-476	NP CAP	47	6.3V
C102	QCT25UJ-100	C CAP	10P	50V
C103	QCS11HJ-150	C CAP	15P	50V
C104	QCT25UJ-330	C CAP	33P	50V
C105	QEPA0JM-476	NP CAP	47	6.3V
C106	QFN41HJ-224	MY CAP	0.22	50V
C107	QER41CM-476	E CAP	47	16V
C108	QEJ41CM-335	T CAP	3.3	16V
C109	QEJ41CM-335	T CAP	3.3	16V
C110	QEJ41CM-335	T CAP	3.3	16V
C111	QFN41HJ-473	MY CAP	0.047	50V
C112	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C113	QER41CM-476	E CAP	47	16V
C114	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C115	QER41CM-476	E CAP	47	16V
C116	QER41CM-476	E CAP	47	16V
C117	QCS11HJ-120	C CAP	12P	50V
C118	QCT25UJ-330	C CAP	33P	50V
C119	QCT25UJ-270	C CAP	27P	50V
C120	QER41CM-476	E CAP	47	16V
C121	QCT25CH-180	C CAP	18P	50V
C122	QCT25CH-121	C CAP	120P	50V
C123	QFN41HJ-102	MY CAP	1000P	50V
C124	QFN41HJ-224	MY CAP	0.22	50V
C125	QER41CM-476	E CAP	47	16V
C126	QEJ41CM-335	T CAP	3.3	16V
C127	QEJ41CM-335	T CAP	3.3	16V
C128	QEJ41CM-335	T CAP	3.3	16V
C129	QFN41HJ-473	MY CAP	0.047	50V
C130	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C131	QER41CM-476	E CAP	47	16V
C132	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C133	QER41CM-476	E CAP	47	16V
C134	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C135	QCS11HJ-120	C CAP	12P	50V
C136	QCT25UJ-330	C CAP	33P	50V
C137	QCT25UJ-270	C CAP	27P	50V
C138	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C139	QCT25CH-180	C CAP	18P	50V
C140	QCT25CH-101	C CAP	100P	50V
C141	QCT25UJ-680	C CAP	68P	50V
C142	QCT25UJ-680	C CAP	68P	50V
C143	QCT25CH-820	C CAP	82P	50V
C144	QCT25UJ-470	C CAP	47P	50V
C145	QFN41HJ-103	MY CAP	0.010	50V
C146	QFN41HJ-223	MY CAP	0.022	50V

Symbol No.	Part No.	Part Name	Description	
C147	QCT25UJ-680	C CAP	68P	50V
C148	QCT25UJ-680	C CAP	68P	50V
C149	QCT25CH-820	C CAP	82P	50V
C150	QCT25UJ-470	C CAP	47P	50V
C151	QFN41HJ-103	MY CAP	0.010	50V
C152	QFN41HJ-223	MY CAP	0.022	50V
C153	QCT25UJ-680	C CAP	68P	50V
C154	QCT25UJ-680	C CAP	68P	50V
C155	QCT25CH-820	C CAP	82P	50V
C156	QCT25UJ-470	C CAP	47P	50V
C157	QFN41HJ-103	MY CAP	0.010	50V
C158	QFN41HJ-223	MY CAP	0.022	50V
C159	QFN41HJ-103	MY CAP	0.010	50V
C160	QFN41HJ-103	MY CAP	0.010	50V
C161	QFN41HJ-103	MY CAP	0.010	50V
C162	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C163	QER41CM-476	E CAP	47	16V
C165	QER41CM-476	E CAP	47	16V
C166	QCT25CH-270	C CAP	27P	50V
C167	QCT25CH-270	C CAP	27P	50V
C168	QEPA0JM-476	NP CAP	47	6.3V
C169	QFN41HJ-223	MY CAP	0.022	50V
C171	QER41CM-476	E CAP	47	16V
C172	QER41CM-476	E CAP	47	16V
C173	QER41CM-476	E CAP	47	16V
C174	QER41CM-476	E CAP	47	16V
C175	QER41CM-476	E CAP	47	16V
C176	QER41CM-476	E CAP	47	16V
C403	QER41CM-106	E CAP	10	16V
C404	QER41CM-106	E CAP	10	16V
C409	QEPA1CM-106	NP CAP	10	16V
C410	QEPA1CM-106	NP CAP	10	16V
C411	QEPA1CM-106	NP CAP	10	16V
C412	QEPA1CM-106	NP CAP	10	16V
C413	QEPA1CM-106	NP CAP	10	16V
C414	QEPA1CM-106	NP CAP	10	16V
C415	QEPA1CM-106	NP CAP	10	16V
C416	QEPA1CM-106	NP CAP	10	16V
C417	QCT25CH-390	C CAP	39P	50V
C418	QCT25CH-390	C CAP	39P	50V
C420	QER41CM-106	E CAP	10	16V
C421	QCF11HP-103	CER.CAPACITOR	0.010	50V
C422	QER41CM-106	E CAP	10	16V
C423	QCF11HP-103	CER.CAPACITOR	0.010	50V
C424	QER41CM-106	E CAP	10	16V
C425	QER41CM-106	E CAP	10	16V
C426	QER41CM-106	E CAP	10	16V
C427	QCF11HP-103	CER.CAPACITOR	0.010	50V
C428	QER41CM-106	E CAP	10	16V
C429	QCF11HP-103	CER.CAPACITOR	0.010	50V
C430	QER41CM-106	E CAP	10	16V
C431	QER41CM-106	E CAP	10	16V
C432	QCF11HP-103	CER.CAPACITOR	0.010	50V
C433	QCF11HP-103	CER.CAPACITOR	0.010	50V
C434	QCF11HP-103	CER.CAPACITOR	0.010	50V
C435	QCF11HP-103	CER.CAPACITOR	0.010	50V
C436	QCF11HP-103	CER.CAPACITOR	0.010	50V
C437	QCF11HP-103	CER.CAPACITOR	0.010	50V
C438	QCF11HP-103	CER.CAPACITOR	0.010	50V
C439	QCF11HP-103	CER.CAPACITOR	0.010	50V

Symbol No.	Part No.	Part Name	Description	
C440	QCF11HP-103	CER.CAPACITOR	0.010	50V
C441	QCF11HP-103	CER.CAPACITOR	0.010	50V
C442	QCF11HP-103	CER.CAPACITOR	0.010	50V
C443	QCF11HP-103	CER.CAPACITOR	0.010	50V
C444	QCF11HP-103	CER.CAPACITOR	0.010	50V
C445	QCF11HP-103	CER.CAPACITOR	0.010	50V
C447	QCF11HP-103	CER.CAPACITOR	0.010	50V
C448	QEX41CM-156	E CAP	15	16V
C500	QEX41CM-156	E CAP	15	16V
C600	QEX41CM-156	E CAP	15	16V
C601	QCT25CH-820	C CAP	82P	50V
C602	QCT25CH-820	C CAP	82P	50V
C603	QCT25CH-820	C CAP	82P	50V
C604	QCT25CH-820	C CAP	82P	50V
L1	SCV0331-120	PEAKING COIL	12μH	
L2	SCV0331-221	PEAKING COIL	220μH	
L3	SCV0331-221	PEAKING COIL	220μH	
L4	SCV0331-270	PEAKING COIL	27μH	
L5	SCV0331-330	PEAKING COIL	33μH	
L6	SCV0331-221	PEAKING COIL	220μH	
L7	SCV0331-221	PEAKING COIL	220μH	
L8	SCV0331-270	PEAKING COIL	27μH	
L9	SCV0331-330	PEAKING COIL	33μH	
L10	SCV0331-470	PEAKING COIL	47μH	
L11	SCV0331-390	PEAKING COIL	39μH	
L12	SCV0331-470	PEAKING COIL	47μH	
L13	SCV0331-390	PEAKING COIL	39μH	
L14	SCV0331-470	PEAKING COIL	47μH	
L15	SCV0331-390	PEAKING COIL	39μH	
L101	SCV0331-120	PEAKING COIL	12μH	
L102	SCV0331-221	PEAKING COIL	220μH	
L103	SCV0331-221	PEAKING COIL	220μH	
L104	SCV0331-270	PEAKING COIL	27μH	
L105	SCV0331-330	PEAKING COIL	33μH	
L106	SCV0331-221	PEAKING COIL	220μH	
L107	SCV0331-221	PEAKING COIL	220μH	
L108	SCV0331-270	PEAKING COIL	27μH	
L109	SCV0331-330	PEAKING COIL	33μH	
L110	SCV0331-470	PEAKING COIL	47μH	
L111	SCV0331-390	PEAKING COIL	39μH	
L112	SCV0331-470	PEAKING COIL	47μH	
L113	SCV0331-390	PEAKING COIL	39μH	
L114	SCV0331-470	PEAKING COIL	47μH	
L115	SCV0331-390	PEAKING COIL	39μH	
L402	SCV0331-221	PEAKING COIL	22μH	
DL1	SCV1956	DELAY LINE	22μH	
DL11	SCV1956	DELAY LINE	22μH	
X1	SCV1416-002	CRYSTAL	21.47727MHz	
CN4	SCV1704-200	CONNECTOR	200 pin	
CN14	SCV1929-100	CONNECTOR	100 pin	

7.11 SG/CPU board assembly list [1][1]

[1][1]☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	TMPZ84C015AF-6	I.C.(M)	
IC2	HA17012PC	I.C.(M)	HITACHI
IC3	NJM78M05FA	I.C.(M)	JRC
IC4	RC4558DD	I.C.(M)	RAYTHEON
IC5	AN6914	I.C.(M)	MATSUSHITA
IC6	NJU7304D	I.C.(M)	JRC
IC7	NJU7304D	I.C.(M)	JRC
IC8	NJU7304D	I.C.(M)	JRC
IC9	SN74HC139N	I.C.(M)	TEXAS
IC10	TC74HC00AP	I.C.(M)	TOSHIBA
IC11	TC5564APL-15	I.C.(M)	TOSHIBA
IC12	PLSC1034-V☐-☐☐	I.C.(M)	JVC,PROGRAM ROM
	Must be the same version as that of Program ROM (IC4) of CC board.		
IC12	SSV0235	IC SOCKET	JVC
IC14	MN1280(P.Q)	I.C.(M)	MATSUSHITA
IC15	TC74HC04AP	I.C.(M)	TOSHIBA
IC16	SN74HC32N	I.C.(M)	TEXAS
IC17	PC-827	I.C(PH COUPLER)	SHARP
IC18	HD26LS32P	I.C.(M)	HITACHI
IC19	HD26LS31P	I.C.(M)	HITACHI
IC21	AN90B22	I.C.(M)	MATSUSHITA
IC22	SN74HC373N	I.C.(M)	TOSHIBA
IC23	AN90B22	I.C.(M)	MATSUSHITA
IC24	SN74HC373N	I.C.(M)	TOSHIBA
IC25	AN90B22	I.C.(M)	MATSUSHITA
IC26	SN74HC373N	I.C.(M)	TOSHIBA
IC27	AN90B22	I.C.(M)	MATSUSHITA
IC28	SN74HC373N	I.C.(M)	TOSHIBA
IC29	SN74HC244N	I.C.(M)	TEXAS
IC30	SN74HC373N	I.C.(M)	TOSHIBA
IC31	SN74HC244N	I.C.(M)	TEXAS
IC34	UPD74HC393C	I.C.(M)	NEC
IC35	SN74HC138N	I.C.(M)	TEXAS
IC36	UPD71055C	I.C.(M)	NEC
IC37	UPD71055C	I.C.(M)	NEC
IC38	UPD71055C	I.C.(M)	NEC
IC39	TC40H000P	I.C.(M)	TOSHIBA
IC43	RC4558DD	I.C.(M)	RAYTHEON
IC100	VC2100	I.C.(M)	JVC
IC101	TC4538BP	I.C.(M)	TOSHIBA
IC102	TC4538BP	I.C.(M)	TOSHIBA
IC103	HA11247	I.C.(M)	HITACHI
IC104	TC4053BP	I.C.(M)	TOSHIBA
IC105	RC4560DD	I.C.(M)	RAYTHEON
IC106	UPD74HC123AC	I.C.(M)	NEC
IC107	RC4560DD	I.C.(M)	RAYTHEON
IC108	TC40H000P	I.C.(M)	TOSHIBA
IC109	TC40H004P	I.C.(M)	TOSHIBA
IC111	TC74HC00AP	I.C.(M)	TOSHIBA
IC112	UPD9316G	I.C.(M)	NEC
IC113	AN607P	I.C.(M)	MATSUSHITA (E)
IC114	TC74HC40103AP	I.C.(M)	TOSHIBA
IC115	TC74HC40103AP	I.C.(M)	TOSHIBA
IC116	UPD9316G	I.C.(M)	NEC
IC117	TC74HC04AP	I.C.(M)	TOSHIBA
IC118	TC74HC04AP	I.C.(M)	TOSHIBA
IC119	NJM7809FA	I.C.(M)	JRC
IC120	NJM79M09FA	I.C.(M)	JRC
IC121	TC74HC02AP	I.C.(M)	TOSHIBA (E)

Symbol No.	Part No.	Part Name	Description
IC122	TC74HC00AP	I.C.(M)	TOSHIBA
Q1	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q3	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q4	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q5	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q6	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q100	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q101	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q102	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q103	2SA564(R)	TRANSISTOR	MATSUSHITA
Q104	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q105	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q106	2SA564(R)	TRANSISTOR	MATSUSHITA
Q107	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q108	2SA564(R)	TRANSISTOR	MATSUSHITA
Q109	DTC124ES	DTL.TRANSISTOR	ROHM (E)
Q110	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q111	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q112	2SC1685(R)	TRANSISTOR	MATSUSHITA
D1	MA165	DIODE	MATSUSHITA
D2	MA165	DIODE	MATSUSHITA
D3	MA165	DIODE	MATSUSHITA
D4	MA165	DIODE	MATSUSHITA
D5	MA165	DIODE	MATSUSHITA
D6	MA165	DIODE	MATSUSHITA
D7	MA165	DIODE	MATSUSHITA
D8	MA165	DIODE	MATSUSHITA
D9	MA165	DIODE	MATSUSHITA
D10	MA165	DIODE	MATSUSHITA
D11	MA165	DIODE	MATSUSHITA
D12	MA165	DIODE	MATSUSHITA
D100	MA165	DIODE	MATSUSHITA
D101	MA165	DIODE	MATSUSHITA
D102	MA165	DIODE	MATSUSHITA
D103	FC-52M	VARI.CAP.DIODE	FUJITSU
D104	FC-52M	VARI.CAP.DIODE	FUJITSU
D105	MA165	DIODE	MATSUSHITA
D106	MA165	DIODE	MATSUSHITA
D107	HZS15-3L	ZENER DIODE	HITACHI
D108	HZS15-3L	ZENER DIODE	HITACHI
D109	HZS15-3L	ZENER DIODE	HITACHI
D110	HZS15-3L	ZENER DIODE	HITACHI
D111	HZS15-3L	ZENER DIODE	HITACHI
D112	MA165	DIODE	MATSUSHITA
D113	MA165	DIODE	MATSUSHITA
R1	QRD161J-472	CR	4.7K 1/6W
R2	QRD161J-472	CR	4.7K 1/6W
R3	QRD161J-220	CR	22 1/6W
R4	QRD161J-122	CR	1.2K 1/6W
R5	QRD161J-331	CR	330 1/6W
R6	QRD161J-821	CR	820 1/6W
R8	QRD161J-103	CR	10K 1/6W
R10	QRD161J-102	CR	1.0K 1/6W
R11	QRD161J-822	CR	8.2K 1/6W
R12	QRD161J-472	CR	4.7K 1/6W

Symbol No.	Part No.	Part Name	Description	
R13	QRD161J-223	CR	22K	1/6W
R14	QRD161J-101	CR	100	1/6W
R15	QRD161J-332	CR	3.3K	1/6W
R18	QRD161J-102	CR	1.0K	1/6W
R19	QRD161J-101	CR	100	1/6W
R20	QRD161J-101	CR	100	1/6W
R22	QRD161J-105	CR	1.0M	1/6W
R23	QRD161J-472	CR	4.7K	1/6W
R24	QRD161J-472	CR	4.7K	1/6W
R25	QRD161J-0R0	CR	0	1/6W
R26	QRD161J-103	CR	10K	1/6W
R27	QRD161J-102	CR	1.0K	1/6W
R28	QRD161J-102	CR	1.0K	1/6W
R29	QRD161J-471	CR	470	1/6W
R30	QRD161J-471	CR	470	1/6W
R31	QRD161J-181	CR	180	1/6W
R32	QRD161J-181	CR	180	1/6W
R33	QRD161J-181	CR	180	1/6W
R34	QRD161J-181	CR	180	1/6W
R35	QRD161J-472	CR	4.7K	1/6W
R36	QRD161J-472	CR	4.7K	1/6W
R37	QRD161J-472	CR	4.7K	1/6W
R38	QRD161J-472	CR	4.7K	1/6W
R39	QRD161J-103	CR	10K	1/6W
R40	QRD161J-392	CR	3.9K	1/6W
R41	QRD161J-153	CR	15K	1/6W
R42	QRD161J-470	CR	47	1/6W
R101	QRD161J-223	CR	22K	1/6W
R102	QRD161J-223	CR	22K	1/6W
R103	QRD161J-222	CR	2.2K	1/6W
R104	QRD161J-102	CR	1.0K	1/6W
R105	QRD161J-102	CR	1.0K	1/6W
R106	QRD161J-472	CR	4.7K	1/6W
R107	QRD161J-472	CR	4.7K	1/6W
R108	QRD161J-102	CR	1.0K	1/6W
R109	QRD161J-122	CR	1.2K	1/6W
R110	QRD161J-823	CR	82K	1/6W
R111	QRD161J-123	CR	12K	1/6W
R112	QRD161J-123	CR	12K	1/6W
R113	QRD161J-122	CR	1.2K	1/6W
R114	QRD161J-222	CR	2.2K	1/6W
R115	QRD161J-563	CR	56K	1/6W
R116	QRD161J-273	CR	27K	1/6W
R117	QRD161J-102	CR	1.0K	1/6W
R118	QRD161J-103	CR	10K	1/6W
R119	QRD161J-103	CR	10K	1/6W
R120	QRD161J-222	CR	2.2K	1/6W
R121	QRD161J-123	CR	12K	1/6W
R122	QRD161J-103	CR	10K	1/6W
R123	QRD161J-391	CR	390	1/6W
R124	QRD161J-102	CR	1.0K	1/6W
R125	QRD161J-152	CR	1.5K	1/6W
R126	QRD161J-271	CR	270	1/6W
R127	QRD161J-563	CR	56K	1/6W
R128	QRD161J-391	CR	390	1/6W
R129	QRD161J-103	CR	10K	1/6W
R130	QRD161J-103	CR	10K	1/6W
R132	QRD161J-563	CR	56K	1/6W
R133	QRD161J-472	CR	4.7K	1/6W
R134	QRD161J-223	CR	22K	1/6W

Symbol No.	Part No.	Part Name	Description	
R135	QRD161J-103	CR	10K	1/6W
R136	QRD161J-223	CR	22K	1/6W
R137	QRD161J-682	CR	6.8K	1/6W
R138	QRD161J-392	CR	3.9K	1/6W
R139	QRD161J-392	CR	3.9K	1/6W
R140	QRD161J-472	CR	4.7K	1/6W
R141	QRD161J-562	CR	5.6K	1/6W
R142	QRD161J-332	CR	3.3K	1/6W
R143	QRD161J-332	CR	3.3K	1/6W
R144	QRD161J-682	CR	6.8K	1/6W
R145	QRD161J-682	CR	6.8K	1/6W
R146	QRD161J-823	CR	82K	1/6W
R147	QRD161J-104	CR	100K	1/6W
R148	QRD161J-103	CR	10K	1/6W
R149	QRD161J-184	CR	180K	1/6W
R150	QRD161J-821	CR	820	1/6W
R151	QRD161J-332	CR	3.3K	1/6W
R152	QRD161J-682	CR	6.8K	1/6W
R154	QRD161J-562	CR	5.6K	1/6W
R155	QRD161J-562	CR	5.6K	1/6W
R156	QRD161J-224	CR	220K	1/6W
R157	QRD161J-562	CR	5.6K	1/6W
R158	QRD161J-682	CR	6.8K	1/6W
R159	QRD161J-104	CR	100K	1/6W
R160	QRD161J-104	CR	100K	1/6W
R161	QRD161J-101	CR	100	1/6W
R162	QRD161J-102	CR	1.0K	1/6W (U)
	QRD161J-331	CR	330	1/6W (E)
R163	QRD161J-272	CR	2.7K	1/6W
R165	QRD161J-102	CR	1.0K	1/6W
R166	QRD161J-123	CR	12K	1/6W
R167	QRD161J-273	CR	27K	1/6W (U)
	QRD161J-153	CR	15K	1/6W (E)
R168	QRD161J-472	CR	4.7K	1/6W
R169	QRD161J-104	CR	100K	1/6W
R170	QRD161J-104	CR	100K	1/6W
R171	QRD161J-331	CR	330	1/6W
R172	QRD161J-271	CR	270	1/6W
R173	QRD161J-0R0	CR	0	1/6W (U)
R174	QRD161J-0R0	CR	0	1/6W (E)
R175	QRD161J-0R0	CR	0	1/6W (E)
R176	QRD161J-0R0	CR	0	1/6W (U)
R177	QRD161J-103	CR	10K	1/6W (E)
R179	QRD161J-332	CR	3.3K	1/6W (E)
R180	QRD161J-102	CR	1.0K	1/6W
R181	QRD161J-391	CR	390	1/6W
R183	QRD161J-101	CR	100	1/6W
R184	QRD161J-273	CR	27K	1/6W
R185	QRD161J-273	CR	27K	1/6W
R186	QRD161J-102	CR	1.0K	1/6W
R187	QRD161J-0R0	CR	0	1/6W (E)
R188	QRD161J-0R0	CR	0	1/6W (U)
R189	QRD161J-0R0	CR	0	1/6W (E)
R190	QRD161J-0R0	CR	0	1/6W (U)
R191	QRD161J-0R0	CR	0	1/6W (E)
R192	QRD161J-0R0	CR	0	1/6W (U)
R193	QRD161J-0R0	CR	0	1/6W (E)
R194	QRD161J-0R0	CR	0	1/6W (U)
R195	QRD161J-0R0	CR	0	1/6W (E)
R196	QRD161J-0R0	CR	0	1/6W (U)

[SG/CPU]

Symbol No.	Part No.	Part Name	Description	
R197	QRD161J-0R0	CR	0	1/6W(E)
R199	QRD161J-223	CR	22K	1/6W
R200	QRD161J-0R0	CR	0	1/6W(E)
R201	QRD161J-0R0	CR	0	1/6W(U)
R202	QRD161J-222	CR	2.2K	1/6W
R203	QRD161J-222	CR	2.2K	1/6W
R204	QRD161J-182	CARBON RESISTOR	1.8K	1/6W
R205	QRD161J-222	CR	2.2K	1/6W
R206	QRD161J-222	CR	2.2K	1/6W
R207	QRD161J-182	CARBON RESISTOR	1.8K	1/6W
R208	QRD161J-184	CR	180K	1/6W(E)
R209	QRD161J-0R0	CR	0	1/6W(U)
R212	QRD161J-103	CR	10K	1/6W
R213	QRD161J-101	CR	100	1/6W
R214	QRD161J-271	CR	270	1/6W
R215	QRD161J-102	CR	1.0K	1/6W
R216	QRD161J-562	CR	5.6K	1/6W
R217	QRD161J-561	CR	560	1/6W
VR100	QVPB613-503	TRIM.RESISTOR	50K	BPF PSTN
VR101	QVPB613-501	TRIM.RESISTOR	500	SC LOCK
VR102	QVPB613-102	TRIM.RESISTOR	1K	H LOCK
VR103	QVPB613-501	TRIM.RESISTOR	500	SC LEVEL
VR104	QVPB613-103	TRIM.RESISTOR	10K	BURST START
VR105	QVPB613-103	TRIM.RESISTOR	10K	BURST STOP
VR106	QVPB702-202	TRIM.RESISTOR	2K	H.PHASE
VR107	QVPB702-202	TRIM.RESISTOR	2K	SC FINE
RA1	QRB081J-103	R.NETWORK	10K	
RA2	QRB081J-103	R.NETWORK	10K	
RA3	QRB081J-103	R.NETWORK	10K	
RA4	QRB081J-103	R.NETWORK	10K	
RA5	QRB081J-103	R.NETWORK	10K	
RA6	QRB081J-103	R.NETWORK	10K	
RA7	QRB081J-103	R.NETWORK	10K	
RA8	QRB081J-103	R.NETWORK	10K	
RA9	QRB081J-103	R.NETWORK	10K	
RA10	QRB081J-103	R.NETWORK	10K	
RA11	QRB081J-103	R.NETWORK	10K	
C1	QER41CM-476	E CAP	47	16V
C2	QER41CM-476	E CAP	47	16V
C3	QER41CM-476	E CAP	47	16V
C4	QER41CM-476	E CAP	47	16V
C5	QER41CM-476	E CAP	47	16V
C6	QCZ0206-104	C CAP	0.10	
C7	QCZ0206-104	C CAP	0.10	
C8	QER41CM-226	E CAP	22	16V
C9	QCZ0206-104	C CAP	0.10	
C10	QCZ0206-104	C CAP	0.10	
C11	QER41CM-226	E CAP	22	16V
C12	QCS11HJ-220	C CAP	22P	50V
C13	QCZ0206-104	C CAP	0.10	
C14	QCZ0206-104	C CAP	0.10	
C15	QCS11HJ-471	C CAP	470P	50V
C16	QCZ0206-104	C CAP	0.10	
C17	QCZ0206-104	C CAP	0.10	
C18	QCZ0206-104	C CAP	0.10	
C19	QCZ0206-104	C CAP	0.10	
C20	QCZ0206-104	C CAP	0.10	

Symbol No.	Part No.	Part Name	Description	
C21	QCZ0206-104	C CAP	0.10	
C22	QER41CM-226	E CAP	22	16V
C23	QCZ0206-104	C CAP	0.10	
C25	QCZ0206-104	C CAP	0.10	
C26	QCS11HJ-330	CER.CAPACITOR	33P	50V
C27	QCS11HJ-220	C CAP	22P	50V
C28	QCZ0206-104	C CAP	0.10	
C29	QCZ0206-104	C CAP	0.10	
C30	QCZ0206-104	C CAP	0.10	
C31	QCZ0206-104	C CAP	0.10	
C32	QCZ0206-104	C CAP	0.10	
C33	QCZ0206-104	C CAP	0.10	
C34	QCZ0206-104	C CAP	0.10	
C35	QCZ0206-104	C CAP	0.10	
C36	QCZ0206-104	C CAP	0.10	
C37	QCZ0206-104	C CAP	0.10	
C38	QCZ0206-104	C CAP	0.10	
C41	QCS11HJ-470	CER.CAPACITOR	47P	50V
C42	QCS11HJ-100	CER.CAPACITOR	10P	50V
C43	QCZ0206-104	C CAP	0.10	
C44	QCZ0206-104	C CAP	0.10	
C46	QCZ0206-104	C CAP	0.10	
C47	QCZ0206-104	C CAP	0.10	
C48	QCZ0206-104	C CAP	0.10	
C49	QCT25CH-101	C CAP	100P	50V
C50	SMV2209-104	EDL CAPACITOR		
C51	QFN41HJ-103	MY CAP	0.010	50V
C53	QCZ0206-104	C CAP	0.10	
C54	QCZ0206-104	C CAP	0.10	
C55	QCZ0206-104	C CAP	0.10	
C56	QCZ0206-104	C CAP	0.10	
C57	QCZ0206-104	C CAP	0.10	
C58	QCZ0206-104	C CAP	0.10	
C59	QCZ0206-104	C CAP	0.10	
C60	QCZ0206-104	C CAP	0.10	
C100	QER41CM-476	E CAP	47	16V
C101	QER41CM-476	E CAP	47	16V
C102	QER41CM-476	E CAP	47	16V
C103	QCZ0206-104	C CAP	0.10	
C104	QCT25UJ-100	C CAP	10P	50V
C105	QCT25UJ-390	C CAP	39P	50V
C106	QCT25UJ-221	C CAP	220P	50V
C107	QEJ41VM-474	T CAP	0.47	35V
C108	QEJ41VM-474	T CAP	0.47	35V
C109	QEJ41VM-474	T CAP	0.47	35V
C110	QCT25UJ-270	C CAP	27P	50V
C111	QCT25UJ-221	C CAP	220P	50V
C112	QEJ41VM-474	T CAP	0.47	35V
C113	QER41HM-105	E CAP	1.0	50V
C114	QCT25CH-221	C CAP	220P	50V
C115	QCT25CH-221	C CAP	220P	50V
C116	QCT25CH-121	C CAP	120P	50V
C117	QER41CM-476	E CAP	47	16V
C118	QER41CM-476	E CAP	47	16V
C119	QCT25UJ-470	C CAP	47P	50V(U)
	QCT25UJ-330	C CAP	33P	50V(E)
C120	QFN41HJ-103	MY CAP	0.010	50V
C121	QER41HM-105	E CAP	1.0	50V
C122	QER41CM-476	E CAP	47	16V
C123	QCZ0206-104	C CAP	0.10	

Symbol No.	Part No.	Part Name	Description	
C124	QCT25UJ-820	C CAP	82P	50V (U)
	QCT25UJ-560	C CAP	56P	50V (E)
C125	QCT25CH-101	C CAP	100P	50V
C126	QCT25CH-101	C CAP	100P	50V
C127	QER41CM-106	E CAP	10	16V
C128	QFN41HJ-103	MY CAP	0.010	50V
C129	QFN41HJ-103	MY CAP	0.010	50V
C130	QFN41HJ-392	MY CAP	3900P	50V
C131	QCT25CH-270	C CAP	27P	50V
C132	QCT25CH-220	C CAP	22P	50V
C133	QEPA1HM-105	NP CAP	1.0	50V
C134	QFN41HJ-103	MY CAP	0.010	50V
C135	QFN41HJ-272	MY CAP	2700P	50V
C136	QCS11HJ-561	C CAP	560P	50V
C137	QER41CM-106	E CAP	10	16V
C138	QCT25CH-151	C CAP	150P	50V
C139	QCT25CH-220	C CAP	22P	50V
C140	QER41EM-475	E CAP	4.7	25V
C141	QFN41HJ-393	MY CAP	0.039	50V (U)
	QFN41HJ-224	MY CAP	0.22	50V (E)
C142	QER41CM-106	E CAP	10	16V
C143	QER41CM-106	E CAP	10	16V
C144	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V (E)
C145	QFN41HJ-103	MY CAP	0.010	50V
C146	QCT25CH-390	C CAP	39P	50V
C147	QCT25CH-100	C CAP	10P	50V
C148	QER41CM-476	E CAP	47	16V
C149	QER41CM-106	E CAP	10	16V
C150	QFN41HJ-333	MY CAP	0.033	50V
C151	QER41CM-106	E CAP	10	16V
C152	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C153	QFN41HJ-102	MY CAP	1000P	50V
C154	QCT25CH-220	C CAP	22P	50V
C155	QER41CM-476	E CAP	47	16V
C156	QCZ0206-104	C CAP	0.10	
C157	QCT25CH-390	C CAP	39P	50V (E)
C158	QCZ0206-104	C CAP	0.10	(E)
C159	QFN41HJ-103	MY CAP	0.010	50V
C161	QFN41HJ-103	MY CAP	0.010	50V
C162	QER41CM-476	E CAP	47	16V
C163	QCZ0206-104	C CAP	0.10	
C164	QCT25CH-270	C CAP	27P	50V
C165	QCT25CH-180	C CAP	18P	50V
C166	QER41CM-476	E CAP	47	16V
C167	QER41CM-476	E CAP	47	16V
C168	QER41CM-476	E CAP	47	16V
C169	QCT25CH-270	C CAP	27P	50V
C170	QCT25CH-180	C CAP	18P	50V
C171	QER41CM-476	E CAP	47	16V
C172	QER41CM-476	E CAP	47	16V
C173	QER41CM-476	E CAP	47	16V
C174	QER41CM-476	E CAP	47	16V
C175	QER41CM-476	E CAP	47	16V
C176	QER41CM-476	E CAP	47	16V
C177	QCT25CH-560	C CAP	56P	50V (U)
	QCT25CH-220	C CAP	22P	50V (E)
C178	QER41CM-476	E CAP	47	16V
C179	QER41CM-476	E CAP	47	16V
C180	QER41CM-476	E CAP	47	16V

Symbol No.	Part No.	Part Name	Description	
C181	QER41CM-476	E CAP	47	16V
C182	QER41CM-476	E CAP	47	16V
C183	QER41CM-476	E CAP	47	16V
C184	QER41CM-476	E CAP	47	16V
C185	QCZ0206-104	C CAP	0.10	
C186	QCZ0206-104	C CAP	0.10	
C187	QER41CM-476	E CAP	47	16V
C188	QER41CM-476	E CAP	47	16V
C189	QCZ0206-104	C CAP	0.10	
C190	QCZ0206-104	C CAP	0.10	
C191	QER41CM-476	E CAP	47	16V
C192	QER41CM-476	E CAP	47	16V
C193	QER41CM-476	E CAP	47	16V
C194	QER41CM-476	E CAP	47	16V
C195	QER41CM-476	E CAP	47	16V
C196	QCZ0206-104	C CAP	0.10	
C197	QCZ0206-104	C CAP	0.10	
C198	QCZ0206-104	C CAP	0.10	
C199	QCZ0206-104	C CAP	0.10	
C200	QCZ0206-104	C CAP	0.10	
C201	QCZ0206-104	C CAP	0.10	
C202	QCZ0206-104	C CAP	0.10	
C205	QCZ0206-104	C CAP	0.10	
C206	QCZ0206-104	C CAP	0.10	
C207	QCZ0206-104	C CAP	0.10	
C208	QCZ0206-104	C CAP	0.10	
C209	QCZ0206-104	C CAP	0.10	
C210	QCZ0206-104	C CAP	0.10	(E)
C211	QCT25CH-121	C CAP	120P	50V (E)
C212	QCT25CH-181	C CAP	180P	50V (U)
	QCS11HJ-471	C CAP	470P	50V (E)
C213	QEX41CM-156	E CAP	15	16V
VC100	QAT3120-200	TRIM.CAPACITOR	20P SC ADJUST	
L1	BL02RN2-R62	FERRITE BEAD	20P SC ADJUST	
L2	BL02RN2-R62	FERRITE BEAD	20P SC ADJUST	
L3	BL02RN2-R62	FERRITE BEAD	20P SC ADJUST	
L4	BL02RN2-R62	FERRITE BEAD	20P SC ADJUST	
L5	BL02RN2-R62	FERRITE BEAD	20P SC ADJUST	
L6	BL02RN2-R62	FERRITE BEAD	20P SC ADJUST	
L100	SCV0331-101	PEAKING COIL	100μH	
L101	SCV0331-680	PEAKING COIL	68μH	
L102	SCV0331-390	PEAKING COIL	39μH	
L103	SCV0331-220	PEAKING COIL	22μH	
L104	SCV0331-120	PEAKING COIL	12μH	
LC27	EXC-EMT271BT	EMI FILTER	12μH	
LC33	EXC-EMT271BT	EMI FILTER	12μH	
LC34	EXC-EMT271BT	EMI FILTER	12μH	
LC35	EXC-EMT271BT	EMI FILTER	12μH	
LC36	EXC-EMT271BT	EMI FILTER	12μH	
LC37	EXC-EMT271BT	EMI FILTER	12μH	
LC38	EXC-EMT271BT	EMI FILTER	12μH	
LC39	EXC-EMT271BT	EMI FILTER	12μH	
LC40	EXC-EMT271BT	EMI FILTER	12μH	
LC41	EXC-EMT271BT	EMI FILTER	12μH	

(SG/CPU)

Symbol No.	Part No.	Part Name	Description
LC42	EXC-EMT271BT	EMI FILTER	12μH
LC43	EXC-EMT271BT	EMI FILTER	12μH
LC44	EXC-EMT271BT	EMI FILTER	12μH
LC45	EXC-EMT271BT	EMI FILTER	12μH
LC46	EXC-EMT271BT	EMI FILTER	12μH
LC47	EXC-EMT271BT	EMI FILTER	12μH
LC48	EXC-EMT271BT	EMI FILTER	12μH
LC49	EXC-EMT271BT	EMI FILTER	12μH
LC50	EXC-EMT271BT	EMI FILTER	12μH
LC51	EXC-EMT271BT	EMI FILTER	12μH
LC52	EXC-EMT271BT	EMI FILTER	12μH
LC53	EXC-EMT271BT	EMI FILTER	12μH
LC54	EXC-EMT271BT	EMI FILTER	12μH
LC55	EXC-EMT271BT	EMI FILTER	12μH
LC56	EXC-EMT271BT	EMI FILTER	12μH
LC57	EXC-EMT271BT	EMI FILTER	12μH
LC58	EXC-EMT271BT	EMI FILTER	12μH
LC59	EXC-EMT271BT	EMI FILTER	12μH
LC60	EXC-EMT271BT	EMI FILTER	12μH
LC61	EXC-EMT271BT	EMI FILTER	12μH
LC62	EXC-EMT271BT	EMI FILTER	12μH
LC63	EXC-EMT271BT	EMI FILTER	12μH
LC64	EXC-EMT271BT	EMI FILTER	12μH
LC65	EXC-EMT271BT	EMI FILTER	12μH
LC66	EXC-EMT271BT	EMI FILTER	12μH
LC67	EXC-EMT271BT	EMI FILTER	12μH
LC68	EXC-EMT271BT	EMI FILTER	12μH
LC69	EXC-EMT271BT	EMI FILTER	12μH
LC70	EXC-EMT271BT	EMI FILTER	12μH
LC71	EXC-EMT271BT	EMI FILTER	12μH
LC72	EXC-EMT271BT	EMI FILTER	12μH
LC73	EXC-EMT271BT	EMI FILTER	12μH
LC74	EXC-EMT271BT	EMI FILTER	12μH
LC75	EXC-EMT271BT	EMI FILTER	12μH
LC76	EXC-EMT271BT	EMI FILTER	12μH
LC77	EXC-EMT271BT	EMI FILTER	12μH
LC78	EXC-EMT271BT	EMI FILTER	12μH
LC79	EXC-EMT271BT	EMI FILTER	12μH
LC80	EXC-EMT271BT	EMI FILTER	12μH
X1	SCV1398	CRYSTAL	8MHz
X2	SSV0387	CRYSTAL	4.9152MHz
X100	SCV0347-001	CRYSTAL	14.3MHz (U)
	SCV0348-001	CRYSTAL	17.7MHz (E)
X101	SCV1845-001	CRYSTAL	13.5MHz
RY1	AG2303	RELAY	for TALLY 1
RY2	AG2303	RELAY	for TALLY 2
RY3	AG2303	RELAY	for TALLY 3
RY4	AG2303	RELAY	for TALLY 4
RY5	AG2303	RELAY	for TALLY MODE
S1	SCV1131-001	DIP SWITCH	CPU MODE
S2	SCV1131-001	DIP SWITCH	CPU MODE
S3	SCV1639-001	PUSH SWITCH	HARD RESET
S4	QSS1A23-S01	SLIDE SWITCH	SC COARSE
CN3	SCV1704-200	CONNECTOR	200 pin

Symbol No.	Part No.	Part Name	Description
CN13	SCV1929-100	CONNECTOR	100 pin
FL100	SFE3.58MB	CERAMIC FILTER	3.58MHz (U)
	SFE4.43MB	CERAMIC FILTER	4.43MHz (E)
P1	SCV1149-001	SHORT PLUG	VITC/NORMAL
	CBM1-5 CBMC4496-00A PULSE AMP CBM		
Q1	2SA1256E4.5	SI.TRANSISTOR	SANYO
Q2	2SA1179M5.6	TRANSISTOR	SANYO
Q3	2SA1179M5.6	TRANSISTOR	SANYO
Q4	2SA1179M5.6	TRANSISTOR	SANYO
R1	NRSA02J-222	MGR	2.2K 1/10W
R2	NRSA02J-682	MGR	6.8K 1/10W
R3	NRSA02J-472	MGR	4.7K 1/10W
R5	NRSA02J-183	MGR	18K 1/10W
R6	NRSA02J-223	MGR	22K 1/10W
R7	NRSA02J-822	MGR	8.2K 1/10W
R8	NRSA02J-181	MGR	180 1/10W
R9	NRSA02J-152	MGR	1.5K 1/10W
R10	NRSA02J-220	MGR	22 1/10W
R11	NRSA02J-750	MGR	75 1/10W
C1	NCF21EZ-104	C CAP	0.10 25V
	CBM6 CBMC4497-00A PHASE SHIFT CBM		
Q1	2SC2406(S.T)	TRANSISTOR	MATSUSHITA
Q2	2SC2406(S.T)	TRANSISTOR	MATSUSHITA
Q3	2SC2406(S.T)	TRANSISTOR	MATSUSHITA
Q4	2SA1022(B.C)	TRANSISTOR	MATSUSHITA
R1	NRSA02J-102	MGR	1.0K 1/10W
R2	NRSA02J-102	MGR	1.0K 1/10W
R3	NRSA02J-561	MGR	560 1/10W
R4	NRSA02J-821	MGR	820 1/10W
R5	NRSA02J-821	MGR	820 1/10W
R6	NRSA02J-561	MGR	560 1/10W
R7	NRSA02J-681	MGR	680 1/10W
R8	NRSA02J-681	MGR	680 1/10W
R9	NRSA02J-562	MGR	5.6K 1/10W
C1	NCT03CH-101	C CAP	100P 50V
C2	NCT03CH-101	C CAP	100P 50V
C3	NCT03CH-680	CER.CAPACITOR	68P 50V
C4	NCF21EZ-104	C CAP	0.10 25V
C5	NCF21HZ-103	C CAP	0.010 50V

7.12 EFF TBC board assembly list 1 2

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Symbol No.	Part No.	Part Name	Description
IC1	VC2100	I.C.(M)	JVC
IC2	TC4538BP	I.C.(M)	TOSHIBA (E)
IC3	M51271SP	I.C.(M)	MITSUBISHI
IC4	MC1495L	I.C.(M)	MOTOROLA
IC5	MC14577AP	I.C.(M)	MOTOROLA
IC6	TC4053BP	I.C.(M)	TOSHIBA
IC7	NJM082D	I.C.(M)	JRC
IC8	MC14577AP	I.C.(M)	MOTOROLA
IC9	NJM082D	I.C.(M)	JRC
IC10	MC14577AP	I.C.(M)	MOTOROLA
IC11	NJM082D	I.C.(M)	JRC
IC13	TA78L005AP	I.C.(M)	TOSHIBA
IC14	NJM7809FA	I.C.(M)	JRC
IC15	NJM79M09FA	I.C.(M)	JRC
IC20	AN614	I.C.(M)	MATSUSHITA
IC21	AN614	I.C.(M)	MATSUSHITA
IC22	TC74HC04AP	I.C.(M)	TOSHIBA
IC23	TC4053BP	I.C.(M)	TOSHIBA (E)
IC30	MB40568P-G-SK	I.C.(M)	FUJITSU
IC31	MB40568P-G-SK	I.C.(M)	FUJITSU
IC32	MB40568P-G-SK	I.C.(M)	FUJITSU
IC33	UPD74HC257C	I.C.(M)	NEC
IC34	UPD74HC257C	I.C.(M)	NEC
IC35	UPD42101C-1	I.C.(M)	NEC
IC36	UPD42101C-1	I.C.(M)	NEC
IC37	SN74HC74N	I.C.(M)	TEXAS
IC38	HM53051P-60	I.C.(M)	HITACHI
IC39	TC74HC298AP	I.C.(M)	TOSHIBA
IC40	HM53051P-60	I.C.(M)	HITACHI
IC41	HM53051P-60	I.C.(M)	HITACHI
IC42	TC74HC175AP	I.C.(M)	TOSHIBA
IC43	TC74HC374AP	I.C.(M)	TOSHIBA
IC44	UPD42101C-1	I.C.(M)	NEC
IC45	UPD42101C-1	I.C.(M)	NEC
IC46	TC74HC283AP	I.C.(M)	TOSHIBA
IC47	TC74HC283AP	I.C.(M)	TOSHIBA
IC48	SCV1205-024	IC SOCKET	JVC
IC48	GAL20V8-25Q-16	I.C.(M)	JVC
IC49	SCV1205-024	IC SOCKET	JVC
IC49	GAL20V8-25Q-11	I.C.(M)	JVC
IC50	UPD42101C-1	I.C.(M)	NEC
IC51	UPD42101C-1	I.C.(M)	NEC
IC52	TC74HC283AP	I.C.(M)	TOSHIBA
IC53	TC74HC283AP	I.C.(M)	TOSHIBA
IC54	SCV1205-024	IC SOCKET	JVC
IC54	GAL20V8-25Q-19	I.C.(M)	JVC
IC55	SCV1205-024	IC SOCKET	JVC
IC55	GAL20V8-25Q-12	I.C.(M)	JVC
IC56	RC4560DD	I.C.(M)	RAYTHEON
IC57	SN74HC74N	I.C.(M)	TEXAS
IC58	TC74HCU04AP	I.C.(M)	TOSHIBA
IC59	TC74HC04AP	I.C.(M)	TOSHIBA
IC60	TC74HC04AP	I.C.(M)	TOSHIBA
IC61	TC74HC04AP	I.C.(M)	TOSHIBA
IC62	TA78L005AP	I.C.(M)	TOSHIBA
IC63	UPD74HC123AC	I.C.(M)	NEC
IC64	SN74HC74N	I.C.(M)	TEXAS
IC65	TC74HC221AP	I.C.(M)	TOSHIBA
IC66	UPD74HC123AC	I.C.(M)	NEC
IC67	UPD74HC123AC	I.C.(M)	NEC

Symbol No.	Part No.	Part Name	Description
IC68	UPD74HC123AC	I.C.(M)	NEC
IC69	TA78L005AP	I.C.(M)	TOSHIBA
IC70	TC74HC00AP	I.C.(M)	TOSHIBA
IC71	TC74HC14AP	I.C.(M)	TOSHIBA
IC72	TC74HCU04AP	I.C.(M)	TOSHIBA
IC73	SN74HC74N	I.C.(M)	TEXAS
IC74	SN74HC74N	I.C.(M)	TEXAS
IC75	UPD74HC161C	I.C.(M)	NEC
IC76	UPD74HC161C	I.C.(M)	NEC
IC77	UPD74HC161C	I.C.(M)	NEC
IC78	SCV1205-024	IC SOCKET	JVC
IC78	GAL20V8-25Q-13	I.C.(M)	JVC
IC79	UPD74HC161C	I.C.(M)	NEC
IC80	UPD74HC161C	I.C.(M)	NEC
IC81	UPD74HC161C	I.C.(M)	NEC
IC82	SCV1205-024	IC SOCKET	JVC
IC82	GAL20V8-25Q-22	I.C.(M)	JVC (U)
	GAL20V8-25Q-21	I.C.(M)	JVC (E)
IC83	SN74HC74N	I.C.(M)	TEXAS
IC84	MB40778P-G	I.C.(M)	FUJITSU
IC85	MB40778P-G	I.C.(M)	FUJITSU
IC86	MB40778P-G	I.C.(M)	FUJITSU
IC87	SN74HC74N	I.C.(M)	TEXAS
IC88	SN74HC74N	I.C.(M)	TEXAS
IC89	SN74HC74N	I.C.(M)	TEXAS
IC90	TC74HC4066AP	I.C.(M)	TOSHIBA
IC91	NJM082D	I.C.(M)	JRC
IC92	UPD74HC161C	I.C.(M)	NEC
IC93	UPD74HC161C	I.C.(M)	NEC
IC94	UPD74HC161C	I.C.(M)	NEC
IC95	SCV1205-024	IC SOCKET	NEC
IC95	GAL20V8-25Q-14	I.C.(M)	NEC
IC96	TC74HC40103AP	I.C.(M)	TOSHIBA
IC97	UPD74HC161C	I.C.(M)	NEC
IC98	UPD74HC161C	I.C.(M)	NEC
IC99	SN74HC112N	I.C.(M)	NEC
IC100	TC74HC4053AP	I.C.(M)	TOSHIBA
IC102	NJM311D	I.C.(M)	JRC
IC103	TC74HC04AP	I.C.(M)	TOSHIBA
IC104	UPD74HC123AC	I.C.(M)	NEC
IC105	TC74HC00AP	I.C.(M)	TOSHIBA
IC106	TA78L005AP	I.C.(M)	TOSHIBA
IC107	TC74HC298AP	I.C.(M)	TOSHIBA
IC108	TC74HC298AP	I.C.(M)	TOSHIBA
IC109	TC74HC298AP	I.C.(M)	TOSHIBA
IC110	TC74HC298AP	I.C.(M)	TOSHIBA
IC111	HM53051P-60	I.C.(M)	HITACHI
IC112	HM53051P-60	I.C.(M)	HITACHI
IC113	HM53051P-60	I.C.(M)	HITACHI
IC114	TC74HC00AP	I.C.(M)	TOSHIBA
IC115	TC74HC08AP	I.C.(M)	TOSHIBA
IC120	UPD74HC161C	I.C.(M)	NEC
IC121	SN74HC74N	I.C.(M)	TEXAS
IC122	TC74HC40103AP	I.C.(M)	TOSHIBA
IC123	TC74HC40103AP	I.C.(M)	TOSHIBA
IC124	TC74HC40103AP	I.C.(M)	TOSHIBA
IC125	UPD74HC161C	I.C.(M)	NEC
IC126	SCV1205-024	IC SOCKET	JVC
IC126	GAL20V8-25Q-20	I.C.(M)	JVC
IC127	UPD74HC161C	I.C.(M)	NEC

(EFF TBC)

Symbol No.	Part No.	Part Name	Description
IC128	UPD74HC161C	I.C.(M)	NEC
IC129	UPD74HC161C	I.C.(M)	NEC
IC130	SSV0235	IC SOCKET	JVC
IC130	PLSC1046	I.C.(M)	JVC,ROM
IC131	TC74HC166AP	I.C.(M)	TOSHIBA
IC132	UPD74HC161C	I.C.(M)	NEC
IC133	TC74HC595AP	I.C.(M)	TOSHIBA
IC134	TC74HC595AP	I.C.(M)	TOSHIBA
IC135	TC74HC595AP	I.C.(M)	TOSHIBA
IC136	SN74HC74N	I.C.(M)	TEXAS
IC137	SN74HC74N	I.C.(M)	TEXAS
IC138	TC74HC00AP	I.C.(M)	TOSHIBA
IC139	SN74HC74N	I.C.(M)	TEXAS
IC140	TC74HC14AP	I.C.(M)	TOSHIBA
IC141	TC74HC04AP	I.C.(M)	TOSHIBA
IC142	TC74HC04AP	I.C.(M)	TOSHIBA
IC143	SCV1205-024	IC SOCKET	JVC
IC143	GAL20V8-25Q-09	I.C.(M)	JVC
IC144	TC74HC595AP	I.C.(M)	TOSHIBA
IC145	TC74HC595AP	I.C.(M)	TOSHIBA
IC146	TC74HC40103AP	I.C.(M)	TOSHIBA
IC147	TC74HC40103AP	I.C.(M)	TOSHIBA
Q1	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q3	2SA564(R)	TRANSISTOR	MATSUSHITA
Q4	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q5	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q6	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q7	2SA564(R)	TRANSISTOR	MATSUSHITA
Q8	2SA564(R)	TRANSISTOR	MATSUSHITA
Q9	2SA564(R)	TRANSISTOR	MATSUSHITA
Q10	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q11	2SA564(R)	TRANSISTOR	MATSUSHITA
Q12	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q13	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q14	2SA564(R)	TRANSISTOR	MATSUSHITA
Q15	2SA564(R)	TRANSISTOR	MATSUSHITA
Q16	2SA564(R)	TRANSISTOR	MATSUSHITA
Q17	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q18	2SA564(R)	TRANSISTOR	MATSUSHITA
Q19	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q20	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q21	2SA564(R)	TRANSISTOR	MATSUSHITA
Q22	2SA564(R)	TRANSISTOR	MATSUSHITA
Q23	2SA564(R)	TRANSISTOR	MATSUSHITA
Q30	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q31	2SA564(R)	TRANSISTOR	MATSUSHITA
Q32	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q33	2SA564(R)	TRANSISTOR	MATSUSHITA
Q34	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q35	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q36	2SK163(M,N)	FET	NEC
Q37	2SA564(R)	TRANSISTOR	MATSUSHITA
Q38	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q39	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q40	2SA564(R)	TRANSISTOR	MATSUSHITA
Q41	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q42	2SA564(R)	TRANSISTOR	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
Q43	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q44	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q45	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q46	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q47	2SK163(M,N)	FET	NEC
Q48	2SA564(R)	TRANSISTOR	MATSUSHITA
Q49	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q50	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q51	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q52	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q53	2SA564(R)	TRANSISTOR	MATSUSHITA
Q54	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q55	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q56	2SA564(R)	TRANSISTOR	MATSUSHITA
Q57	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q58	2SA564(R)	TRANSISTOR	MATSUSHITA
Q59	2SA564(R)	TRANSISTOR	MATSUSHITA
Q60	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q62	2SC1685(R)	TRANSISTOR	MATSUSHITA (E)
D1	SVC321(A)	VARI CAP DIODE	SANYO
D2	MA165	DIODE	MATSUSHITA
D3	MA165	DIODE	MATSUSHITA
D4	MA165	DIODE	MATSUSHITA
D5	MA165	DIODE	MATSUSHITA
D6	MA165	DIODE	MATSUSHITA
R1	QRD161J-392	CR	3.9K 1/6W
R2	QRD161J-103	CR	10K 1/6W
R3	QRD161J-102	CR	1.0K 1/6W
R4	QRD161J-102	CR	1.0K 1/6W
R5	QRD161J-102	CR	1.0K 1/6W
R6	QRD161J-472	CR	4.7K 1/6W
R7	QRD161J-472	CR	4.7K 1/6W
R8	QRD161J-102	CR	1.0K 1/6W
R9	QRD161J-122	CR	1.2K 1/6W
R10	QRD161J-823	CR	82K 1/6W
R11	QRD161J-123	CR	12K 1/6W
R12	QRD161J-123	CR	12K 1/6W
R13	QRD161J-103	CR	10K 1/6W(E)
R14	QRD161J-333	CR	33K 1/6W(E)
R15	QRD161J-0R0	CR	0 1/6W(U)
R16	QRD161J-153	CR	15K 1/6W
R17	QRD161J-103	CR	10K 1/6W
R18	QRD161J-681	CR	680 1/6W
R19	QRD161J-102	CR	1.0K 1/6W
R20	QRD161J-221	CR	220 1/6W
R21	QRD161J-122	CR	1.2K 1/6W
R22	QRD161J-222	CR	2.2K 1/6W
R23	QRD161J-823	CR	82K 1/6W
R24	QRD161J-222	CR	2.2K 1/6W
R25	QRD161J-393	CR	39K 1/6W
R26	QRD161J-0R0	CR	0 1/6W(E)
R27	QRD161J-223	CR	22K 1/6W
R28	QRD161J-223	CR	22K 1/6W
R29	QRD161J-223	CR	22K 1/6W
R30	QRD161J-474	CR	470K 1/6W
R31	QRD161J-152	CR	1.5K 1/6W

Symbol No.	Part No.	Part Name	Description
R32	QRD161J-101	CR	100 1/6W(U)
	QRD161J-470	CR	47 1/6W(E)
R33	QRD161J-221	CR	220 1/6W(U)
	QRD161J-101	CR	100 1/6W(E)
R35	QRD161J-152	CR	1.5K 1/6W
R36	QRD161J-221	CR	220 1/6W
R37	QRD161J-273	CR	27K 1/6W
R38	QRD161J-153	CR	15K 1/6W
R40	QRD161J-152	CR	1.5K 1/6W(U)
R41	QRD161J-102	CR	1.0K 1/6W(U)
R42	QRD161J-223	CR	22K 1/6W
R43	QRD161J-153	CR	15K 1/6W(U)
R44	QRD161J-223	CR	22K 1/6W(E)
R45	QRD161J-103	CR	10K 1/6W
R46	QRD161J-103	CR	10K 1/6W
R47	QRD161J-103	CR	10K 1/6W
R48	QRD161J-103	CR	10K 1/6W
R49	QRD161J-102	CR	1.0K 1/6W
R50	QRD161J-271	CR	270 1/6W
R51	QRD161J-102	CR	1.0K 1/6W
R52	QRD161J-102	CR	1.0K 1/6W
R53	QRD161J-222	CR	2.2K 1/6W
R54	QRD161J-272	CR	2.7K 1/6W
R55	QRD161J-272	CR	2.7K 1/6W
R56	QRD161J-272	CR	2.7K 1/6W
R57	QRD161J-393	CR	39K 1/6W
R58	QRD161J-153	CR	15K 1/6W
R59	QRD161J-122	CR	1.2K 1/6W
R60	QRD161J-471	CR	470 1/6W
R61	QRD161J-272	CR	2.7K 1/6W
R62	QRD161J-471	CR	470 1/6W
R63	QRD161J-471	CR	470 1/6W
R64	QRD161J-222	CR	2.2K 1/6W
R65	QRD161J-331	CR	330 1/6W
R66	QRD161J-681	CR	680 1/6W
R67	QRD161J-222	CR	2.2K 1/6W
R68	QRD161J-102	CR	1.0K 1/6W
R69	QRD161J-103	CR	10K 1/6W
R70	QRD161J-222	CR	2.2K 1/6W
R71	QRD161J-222	CR	2.2K 1/6W
R72	QRD161J-472	CR	4.7K 1/6W
R73	QRD161J-273	CR	27K 1/6W
R74	QRD161J-562	CR	5.6K 1/6W
R75	QRD161J-102	CR	1.0K 1/6W
R76	QRD161J-182	CARBON RESISTOR	1.8K 1/6W
R77	QRD161J-333	CR	33K 1/6W
R78	QRD161J-392	CR	3.9K 1/6W
R79	QRD161J-331	CR	330 1/6W
R81	QRD161J-152	CR	1.5K 1/6W
R82	QRD161J-271	CR	270 1/6W
R84	QRD161J-152	CR	1.5K 1/6W
R86	QRD161J-101	CR	100 1/6W
R87	QRD161J-102	CR	1.0K 1/6W
R88	QRD161J-222	CR	2.2K 1/6W
R89	QRD161J-471	CR	470 1/6W
R90	QRD161J-471	CR	470 1/6W
R91	QRD161J-393	CR	39K 1/6W
R92	QRD161J-153	CR	15K 1/6W
R93	QRD161J-122	CR	1.2K 1/6W
R94	QRD161J-471	CR	470 1/6W

Symbol No.	Part No.	Part Name	Description
R95	QRD161J-272	CR	2.7K 1/6W
R96	QRD161J-331	CR	330 1/6W
R97	QRD161J-331	CR	330 1/6W
R98	QRD161J-222	CR	2.2K 1/6W
R99	QRD161J-471	CR	470 1/6W
R100	QRD161J-561	CR	560 1/6W
R101	QRD161J-222	CR	2.2K 1/6W
R102	QRD161J-102	CR	1.0K 1/6W
R103	QRD161J-103	CR	10K 1/6W
R104	QRD161J-470	CR	47 1/6W
R105	QRD161J-332	CR	3.3K 1/6W
R106	QRD161J-272	CR	2.7K 1/6W
R108	QRD161J-101	CR	100 1/6W
R109	QRD161J-102	CR	1.0K 1/6W
R110	QRD161J-222	CR	2.2K 1/6W
R111	QRD161J-391	CR	390 1/6W
R112	QRD161J-471	CR	470 1/6W
R113	QRD161J-393	CR	39K 1/6W
R114	QRD161J-153	CR	15K 1/6W
R115	QRD161J-152	CR	1.5K 1/6W
R116	QRD161J-471	CR	470 1/6W
R117	QRD161J-272	CR	2.7K 1/6W
R118	QRD161J-331	CR	330 1/6W
R119	QRD161J-331	CR	330 1/6W
R120	QRD161J-222	CR	2.2K 1/6W
R121	QRD161J-471	CR	470 1/6W
R122	QRD161J-561	CR	560 1/6W
R123	QRD161J-222	CR	2.2K 1/6W
R124	QRD161J-102	CR	1.0K 1/6W
R125	QRD161J-103	CR	10K 1/6W
R126	QRD161J-470	CR	47 1/6W
R127	QRD161J-822	CR	8.2K 1/6W
R128	QRD161J-222	CR	2.2K 1/6W
R129	QRD161J-105	CR	1.0M 1/6W
R130	QRD161J-823	CR	82K 1/6W
R131	QRD161J-823	CR	82K 1/6W
R132	QRD161J-472	CR	4.7K 1/6W
R133	QRD161J-472	CR	4.7K 1/6W
R134	QRD161J-684	CR	680K 1/6W
R160	QRD161J-392	CR	3.9K 1/6W
R161	QRD161J-222	CR	2.2K 1/6W
R162	QRD161J-331	CR	330 1/6W
R163	QRD161J-331	CR	330 1/6W
R164	QRD161J-332	CR	3.3K 1/6W
R166	QRD161J-222	CR	2.2K 1/6W
R167	QRD161J-222	CR	2.2K 1/6W
R168	QRD161J-392	CR	3.9K 1/6W
R171	QRD161J-221	CR	220 1/6W
R175	QRD161J-102	CR	1.0K 1/6W
R176	QRD161J-102	CR	1.0K 1/6W
R177	QRD161J-223	CR	22K 1/6W
R178	QRD161J-153	CR	15K 1/6W
R179	QRD161J-392	CR	3.9K 1/6W
R180	QRD161J-105	CR	1.0M 1/6W
R181	QRD161J-223	CR	22K 1/6W
R182	QRD161J-220	CR	22 1/6W
R183	QRD161J-220	CR	22 1/6W
R184	QRD161J-392	CR	3.9K 1/6W
R185	QRD161J-222	CR	2.2K 1/6W

(EFF TBC)

Symbol No.	Part No.	Part Name	Description
R186	QRD161J-0R0	CR	0 1/6W(U)
R187	QRD161J-0R0	CR	0 1/6W(U)
R188	QRD161J-102	CR	1.0K 1/6W(U)
	QRD161J-122	CR	1.2K 1/6W(E)
R189	QRD161J-222	CR	2.2K 1/6W
R190	QRD161J-102	CR	1.0K 1/6W
R191	QRD161J-393	CR	39K 1/6W
R192	QRD161J-333	CR	33K 1/6W
R193	QRD161J-471	CR	470 1/6W
R194	QRD161J-332	CR	3.3K 1/6W
R195	QRD161J-222	CR	2.2K 1/6W
R196	QRD161J-331	CR	330 1/6W
R197	QRD161J-331	CR	330 1/6W
R198	QRD161J-332	CR	3.3K 1/6W
R200	QRD161J-222	CR	2.2K 1/6W
R201	QRD161J-222	CR	2.2K 1/6W
R202	QRD161J-222	CR	2.2K 1/6W
R203	QRD161J-102	CR	1.0K 1/6W
R204	QRD161J-102	CR	1.0K 1/6W
R205	QRD161J-392	CR	3.9K 1/6W
R206	QRD161J-681	CR	680 1/6W
R208	QRD161J-102	CR	1.0K 1/6W
R209	QRD161J-102	CR	1.0K 1/6W
R210	QRD161J-223	CR	22K 1/6W
R211	QRD161J-153	CR	15K 1/6W
R212	QRD161J-392	CR	3.9K 1/6W
R213	QRD161J-105	CR	1.0M 1/6W
R214	QRD161J-223	CR	22K 1/6W
R215	QRD161J-102	CR	1.0K 1/6W(U)
	QRD161J-122	CR	1.2K 1/6W(E)
R216	QRD161J-222	CR	2.2K 1/6W
R217	QRD161J-0R0	CR	0 1/6W(U)
R218	QRD161J-123	CR	12K 1/6W(E)
R219	QRD161J-102	CR	1.0K 1/6W
R220	QRD161J-331	CR	330 1/6W(U)
	QRD161J-221	CR	220 1/6W(E)
R221	QRD161J-102	CR	1.0K 1/6W
R222	QRD161J-273	CR	27K 1/6W
R223	QRD161J-273	CR	27K 1/6W
R224	QRD161J-221	CR	220 1/6W
R225	QRD161J-102	CR	1.0K 1/6W
R226	QRD161J-102	CR	1.0K 1/6W
R227	QRD161J-222	CR	2.2K 1/6W
R228	QRD161J-471	CR	470 1/6W
R229	QRD161J-471	CR	470 1/6W
R230	QRD161J-332	CR	3.3K 1/6W
R231	QRD161J-822	CR	8.2K 1/6W
R232	QRD161J-681	CR	680 1/6W
R233	QRD161J-561	CR	560 1/6W
R234	QRD161J-392	CR	3.9K 1/6W
R235	QRD161J-471	CR	470 1/6W
R237	QRD161J-272	CR	2.7K 1/6W
R238	QRD161J-122	CR	1.2K 1/6W
R239	QRD161J-222	CR	2.2K 1/6W
R240	QRD161J-153	CR	15K 1/6W
R241	QRD161J-223	CR	22K 1/6W
R242	QRD161J-152	CR	1.5K 1/6W
R244	QRD161J-102	CR	1.0K 1/6W
R245	QRD161J-102	CR	1.0K 1/6W
R246	QRD161J-102	CR	1.0K 1/6W
R247	QRD161J-153	CR	15K 1/6W
R248	QRD161J-223	CR	22K 1/6W
R249	QRD161J-102	CR	1.0K 1/6W
R252	QRD161J-103	CR	10K 1/6W(E)
R253	QRD161J-223	CR	22K 1/6W(E)
R254	QRD161J-392	CR	3.9K 1/6W(E)
R300	QRD161J-221	CR	220 1/6W
R301	QRD161J-221	CR	220 1/6W
R302	QRD161J-221	CR	220 1/6W
R303	QRD161J-102	CR	1.0K 1/6W
R304	QRD161J-223	CR	22K 1/6W
R305	QRD161J-103	CR	10K 1/6W
R306	QRD161J-103	CR	10K 1/6W
R307	QRD161J-103	CR	10K 1/6W
R308	QRD161J-223	CR	22K 1/6W
R309	QRD161J-473	CR	47K 1/6W
R310	QRD161J-224	CR	220K 1/6W
R311	QRD161J-333	CR	33K 1/6W
R312	QRD161J-473	CR	47K 1/6W
R313	QRD161J-102	CR	1.0K 1/6W
R314	QRD161J-473	CR	47K 1/6W
R315	QRD161J-223	CR	22K 1/6W
R316	QRD161J-683	CR	68K 1/6W
R317	QRD161J-102	CR	1.0K 1/6W
R318	QRD161J-104	CR	100K 1/6W
R319	QRD161J-102	CR	1.0K 1/6W
R320	QRD161J-472	CR	4.7K 1/6W
R321	QRD161J-103	CR	10K 1/6W
R322	QRD161J-222	CR	2.2K 1/6W
R323	QRD161J-103	CR	10K 1/6W
R324	QRD161J-222	CR	2.2K 1/6W
R325	QRD161J-473	CR	47K 1/6W
R326	QRD161J-103	CR	10K 1/6W
R327	QRD161J-331	CR	330 1/6W
R328	QRD161J-104	CR	100K 1/6W
R329	QRD161J-0R0	CR	0 1/6W
R339	QRD161J-103	CR	10K 1/6W
R340	QRD161J-103	CR	10K 1/6W
R341	QRD161J-222	CR	2.2K 1/6W
R342	QRD161J-222	CR	2.2K 1/6W
R343	QRD161J-222	CR	2.2K 1/6W
R344	QRD161J-473	CR	47K 1/6W
R345	QRD161J-273	CR	27K 1/6W
R346	QRD161J-224	CR	220K 1/6W
R347	QRD161J-103	CR	10K 1/6W
R348	QRD161J-223	CR	22K 1/6W
R352	QRD161J-102	CR	1.0K 1/6W
R353	QRD161J-473	CR	47K 1/6W
R354	QRD161J-103	CR	10K 1/6W
R355	QRD161J-222	CR	2.2K 1/6W
R356	QRD161J-222	CR	2.2K 1/6W
R357	QRD161J-104	CR	100K 1/6W
R358	QRD161J-471	CR	470 1/6W
R359	QRD161J-332	CR	3.3K 1/6W
R364	QRD161J-0R0	CR	0 1/6W(E)
R365	QRD161J-0R0	CR	0 1/6W(U)
R369	QRD161J-684	CR	680K 1/6W(U)
	QRD161J-225	CR	2.2M 1/6W(E)

Symbol No.	Part No.	Part Name	Description
R370	QRD161J-103	CR	10K 1/6W
R380	QRD161J-0R0	CR	0 1/6W(E)
R381	QRD161J-0R0	CR	0 1/6W(U)
R382	QRD161J-104	CR	100K 1/6W
R383	QRD161J-221	CR	220 1/6W
R384	QRD161J-0R0	CR	0 1/6W(E)
R385	QRD161J-0R0	CR	0 1/6W(U)
R386	QRD161J-0R0	CR	0 1/6W(E)
R387	QRD161J-0R0	CR	0 1/6W(U)
VR1	QVPB613-103	TRIM.RESISTOR	10K R-Y AD LEV
VR2	QVPB613-103	TRIM.RESISTOR	10K HUE
VR3	QVPB613-501	TRIM.RESISTOR	500 Y AD LEV
VR4	QVPB613-202	TRIM.RESISTOR	2K SET UP
VR5	QVPB613-102	TRIM.RESISTOR	1K R-Y PED
VR6	QVPB613-102	TRIM.RESISTOR	1K B-Y PED
VR7	QVPB613-501	TRIM.RESISTOR	500 B-Y AD LEV
VR8	QVPB613-202	TRIM.RESISTOR	2K R-Y EQ
VR9	QVPB613-102	TRIM.RESISTOR	1K PHASE
VR10	QVPB613-501	TRIM.RESISTOR	500 R-Y LEV
VR12	QVPB613-102	TRIM.RESISTOR	1K C BAL 1
VR13	QVPB613-102	TRIM.RESISTOR	1K C BAL 2
VR14	QVPB613-102	TRIM.RESISTOR	1K C BAL 3(E)
VR15	QVPB613-501	TRIM.RESISTOR	500 C LEV
VR16	QVPB613-202	TRIM.RESISTOR	2K B-Y EQ
VR17	QVPB613-501	TRIM.RESISTOR	500 QUAD
VR18	QVPB613-202	TRIM.RESISTOR	2K Y EQ
VR19	QVPB613-501	TRIM.RESISTOR	500 Y LEV
VR30	QVPB613-203	TRIM.RESISTOR	20K H POS
VR31	QVPB613-102	TRIM.RESISTOR	1K DA REF
C1	QEPA0JM-476	NP CAP	47 6.3V
C2	QEPA0JM-476	NP CAP	47 6.3V
C3	QCT25UJ-100	C CAP	10P 50V
C4	QCT25UJ-390	C CAP	39P 50V
C5	QCT25UJ-221	C CAP	220P 50V
C6	QER41CM-476	E CAP	47 16V
C7	QCZ0206-104	C CAP	0.10
C8	QEJ41VM-474	T CAP	0.47 35V
C9	QEJ41VM-474	T CAP	0.47 35V
C10	QEJ41VM-474	T CAP	0.47 35V
C11	QCT25UJ-270	C CAP	27P 50V
C12	QCT25UJ-221	C CAP	220P 50V
C13	QEJ41VM-474	T CAP	0.47 35V
C14	QER41HM-105	E CAP	1.0 50V
C15	QCT25CH-221	C CAP	220P 50V
C16	QCT25CH-221	C CAP	220P 50V
C17	QFN41HJ-392	MY CAP	3900P 50V(E)
C18	QCT25CH-470	C CAP	47P 50V(E)
C19	QER41CM-476	E CAP	47 16V
C20	QCT25UJ-820	C CAP	82P 50V(U)
	QCT25UJ-270	C CAP	27P 50V(E)
C21	QCT25UJ-560	C CAP	56P 50V
C22	QEJ41VM-474	T CAP	0.47 35V
C23	QER41HM-105	E CAP	1.0 50V
C24	QEPA0JM-476	NP CAP	47 6.3V
C25	QFN41HJ-473	MY CAP	0.047 50V
C26	QFN41HJ-103	MY CAP	0.010 50V
C27	QFN41HJ-103	MY CAP	0.010 50V
C28	QER41CM-476	E CAP	47 16V

Symbol No.	Part No.	Part Name	Description
C29	QCZ0206-104	C CAP	0.10
C30	QFN41HJ-102	MY CAP	1000P 50V
C31	QCZ0206-104	C CAP	0.10
C32	QFN41HJ-103	MY CAP	0.010 50V
C34	QFN41HJ-103	MY CAP	0.010 50V
C35	QER41HM-105	E CAP	1.0 50V
C36	QER41CM-476	E CAP	47 16V
C37	QCZ0206-104	C CAP	0.10
C38	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C39	QEPA1HM-105	NP CAP	1.0 50V
C40	QAT3120-100	TR CAP	VCXO
C41	QEJ41VM-474	T CAP	0.47 35V
C42	QFN41HJ-102	MY CAP	1000P 50V(U)
	QCS11HJ-561	C CAP	560P 50V(E)
C43	QCT25CH-100	C CAP	10P 50V
C44	QFN41HJ-103	MY CAP	0.010 50V
C45	QER41CM-106	E CAP	10 16V
C46	QER41CM-106	E CAP	10 16V(U)
C47	QER41CM-476	E CAP	47 16V
C48	QER41CM-106	E CAP	10 16V
C49	QER41HM-105	E CAP	1.0 50V
C50	QER41CM-476	E CAP	47 16V
C51	QCZ0206-104	C CAP	0.10
C52	QER41CM-106	E CAP	10 16V
C53	QCT25CH-470	C CAP	47P 50V
C54	QER41CM-476	E CAP	47 16V
C55	QCT25UJ-220	C CAP	22P 50V
C56	QCT25UJ-101	C CAP	100P 50V
C57	QCT25UJ-101	C CAP	100P 50V
C58	QCT25UJ-220	C CAP	22P 50V
C59	QCT25UJ-270	C CAP	27P 50V
C60	QCT25UJ-220	C CAP	22P 50V(U)
	QCT25UJ-330	C CAP	33P 50V(E)
C61	QCT25UJ-680	C CAP	68P 50V(U)
	QCT25UJ-390	C CAP	39P 50V(E)
C62	QCT25CH-3R0	C CAP	3.0P 50V
C63	QCZ0206-104	C CAP	0.10
C64	QER41CM-106	E CAP	10 16V
C65	QCT25CH-221	C CAP	220P 50V
C66	QCZ0206-104	C CAP	0.10
C67	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C68	QFN41HJ-103	MY CAP	0.010 50V
C69	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C70	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C71	QER41CM-106	E CAP	10 16V
C72	QER41CM-106	E CAP	10 16V
C73	QER41CM-476	E CAP	47 16V
C74	QCT25CH-560	C CAP	56P 50V
C75	QCZ0206-104	C CAP	0.10
C76	QER41CM-106	E CAP	10 16V
C77	QER41CM-476	E CAP	47 16V
C78	QER41CM-476	E CAP	47 16V
C79	QCS11HJ-561	C CAP	560P 50V(U)
	QCT25UJ-331	C CAP	330P 50V(E)
C80	QCS11HJ-561	C CAP	560P 50V(U)
	QCT25UJ-331	C CAP	330P 50V(E)
C81	QCT25UJ-180	C CAP	18P 50V
C82	QCT25CH-560	C CAP	56P 50V
C83	QER41CM-106	E CAP	10 16V

(EFF TBC)

Symbol No.	Part No.	Part Name	Description
C84	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C85	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C86	QER41CM-106	E CAP	10 16V
C87	QER41CM-106	E CAP	10 16V
C88	QER41CM-476	E CAP	47 16V
C89	QCT25CH-470	C CAP	47P 50V
C90	QCZ0206-104	C CAP	0.10
C91	QER41CM-106	E CAP	10 16V
C92	QER41CM-476	E CAP	47 16V
C93	QER41CM-476	E CAP	47 16V
C94	QCS11HJ-561	C CAP	560P 50V (U)
	QCT25UJ-331	C CAP	330P 50V (E)
C95	QCS11HJ-561	C CAP	560P 50V (U)
	QCT25UJ-331	C CAP	330P 50V (E)
C96	QCT25UJ-180	C CAP	18P 50V
C97	QCT25CH-560	C CAP	56P 50V
C98	QER41CM-106	E CAP	10 16V
C99	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C100	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C101	QER41CM-106	E CAP	10 16V
C102	QER41CM-106	E CAP	10 16V
C103	QCT25CH-100	C CAP	10P 50V
C104	QCZ0206-104	C CAP	0.10 (E)
C105	QER41CM-476	E CAP	47 16V (E)
C106	QCZ0206-104	C CAP	0.10
C107	QER41CM-476	E CAP	47 16V
C108	QCZ0206-104	C CAP	0.10
C109	QCZ0206-104	C CAP	0.10
C110	QCZ0206-104	C CAP	0.10
C111	QCZ0206-104	C CAP	0.10
C112	QCZ0206-104	C CAP	0.10
C113	QCZ0206-104	C CAP	0.10
C114	QCZ0206-104	C CAP	0.10
C115	QETA1AM-107	E CAP	100 10V
C117	QETA1EM-107	E CAP	100 25V
C118	QCZ0206-104	C CAP	0.10
C119	QCZ0206-104	C CAP	0.10
C120	QETA1CM-107	E CAP	100 16V
C121	QER41CM-476	E CAP	47 16V
C122	QER41CM-476	E CAP	47 16V
C123	QER41CM-476	E CAP	47 16V
C125	QETA1EM-107	E CAP	100 25V
C126	QCZ0206-104	C CAP	0.10
C127	QCZ0206-104	C CAP	0.10
C128	QETA1CM-107	E CAP	100 16V
C129	QER41CM-476	E CAP	47 16V
C130	QER41CM-476	E CAP	47 16V
C131	QER41CM-476	E CAP	47 16V
C140	QER41CM-476	E CAP	47 16V
C141	QCS11HJ-561	C CAP	560P 50V (U)
	QCT25UJ-331	C CAP	330P 50V (E)
C142	QCS11HJ-561	C CAP	560P 50V (U)
	QCT25UJ-331	C CAP	330P 50V (E)
C143	QCT25UJ-180	C CAP	18P 50V
C144	QCT25UJ-331	C CAP	330P 50V (U)
	QCT25UJ-181	C CAP	180P 50V (E)
C145	QEPA0JM-476	NP CAP	47 6.3V
C147	QER41CM-476	E CAP	47 16V
C148	QEJ41VM-104	T CAP	0.10 35V
C149	QER41CM-476	E CAP	47 16V

Symbol No.	Part No.	Part Name	Description
C150	QCZ0206-104	C CAP	0.10
C151	QCZ0206-104	C CAP	0.10 (U)
C152	QCZ0206-104	C CAP	0.10
C153	QFN41HJ-103	MY CAP	0.010 50V
C154	QFN41HJ-103	MY CAP	0.010 50V
C155	QEPA1HM-105	NP CAP	1.0 50V
C156	QER41CM-476	E CAP	47 16V
C157	QCT25UJ-820	C CAP	82P 50V (U)
	QCT25UJ-270	C CAP	27P 50V (E)
C158	QCT25UJ-560	C CAP	56P 50V
C161	QER41CM-476	E CAP	47 16V
C162	QCS11HJ-561	C CAP	560P 50V (U)
	QCT25UJ-331	C CAP	330P 50V (E)
C163	QCS11HJ-561	C CAP	560P 50V (U)
	QCT25UJ-331	C CAP	330P 50V (E)
C164	QCT25UJ-180	C CAP	18P 50V
C165	QCT25UJ-331	C CAP	330P 50V (U)
	QCT25UJ-181	C CAP	180P 50V (E)
C166	QEPA0JM-476	NP CAP	47 6.3V
C167	QER41CM-476	E CAP	47 16V
C168	QEJ41VM-104	T CAP	0.10 35V
C169	QCZ0206-104	C CAP	0.10
C170	QCZ0206-104	C CAP	0.10
C171	QFN41HJ-103	MY CAP	0.010 50V
C172	QCZ0206-104	C CAP	0.10
C173	QEPA1HM-105	NP CAP	1.0 50V
C174	QCZ0206-104	C CAP	0.10 (E)
C175	QCZ0206-104	C CAP	0.10 (E)
C176	QCZ0206-104	C CAP	0.10 (E)
C177	QCT25UJ-151	C CAP	150P 50V (U)
	QCT25UJ-121	C CAP	120P 50V (E)
C178	QFN41HJ-103	MY CAP	0.010 50V
C179	QCT25CH-820	C CAP	82P 50V
C180	QER41CM-476	E CAP	47 16V
C181	QER41CM-476	E CAP	47 16V
C182	QER41CM-476	E CAP	47 16V
C183	QCT25UJ-220	C CAP	22P 50V
C184	QCT25UJ-101	C CAP	100P 50V
C185	QCT25UJ-101	C CAP	100P 50V
C186	QCT25UJ-220	C CAP	22P 50V
C187	QCT25UJ-270	C CAP	27P 50V
C188	QCT25UJ-820	C CAP	82P 50V
C189	QER41CM-476	E CAP	47 16V
C191	QER41CM-476	E CAP	47 16V
C192	QER41CM-476	E CAP	47 16V
C193	QCT25CH-121	C CAP	120P 50V (E)
C194	QCZ0206-104	C CAP	0.10
C195	QER41CM-476	E CAP	47 16V
C196	QCZ0206-104	C CAP	0.10 (E)
C197	QCT25CH-680	C CAP	68P 50V
C300	QCT25CH-820	C CAP	82P 50V
C301	QCT25CH-820	C CAP	82P 50V
C302	QFN41HJ-102	MY CAP	1000P 50V
C303	QFN41HJ-333	MY CAP	0.033 50V
C304	QCT25CH-820	C CAP	82P 50V
C305	QCT25CH-820	C CAP	82P 50V
C306	QFN41HJ-102	MY CAP	1000P 50V
C307	QCT25CH-820	C CAP	82P 50V
C308	QCT25CH-820	C CAP	82P 50V

Symbol No.	Part No.	Part Name	Description
C309	QFN41HJ-333	MY CAP	0.033 50V
C310	QCT25CH-820	C CAP	82P 50V
C311	QER41EM-475	E CAP	4.7 25V
C312	QCZ0206-104	C CAP	0.10
C313	QCT25CH-101	C CAP	100P 50V
C314	QER41CM-106	E CAP	10 16V
C315	QFN41HJ-103	MY CAP	0.010 50V
C316	QCT25CH-221	C CAP	220P 50V
C317	QFN41HJ-102	MY CAP	1000P 50V
C318	QFN41HJ-102	MY CAP	1000P 50V
C319	QFN41HJ-333	MY CAP	0.033 50V
C320	QCT25CH-121	C CAP	120P 50V
C321	QCT25CH-820	C CAP	82P 50V
C322	QCT25CH-220	C CAP	22P 50V
C323	QCT25CH-220	C CAP	22P 50V
C324	QCZ0206-104	C CAP	0.10
C325	QER41CM-106	E CAP	10 16V
C326	QER41CM-106	E CAP	10 16V
C327	QER41CM-106	E CAP	10 16V
C328	QER41CM-476	E CAP	47 16V
C329	QCZ0206-104	C CAP	0.10
C330	QETA1AM-107	E CAP	100 10V
C331	QER41CM-106	E CAP	10 16V
C332	QER41CM-476	E CAP	47 16V
C333	QER41CM-106	E CAP	10 16V
C334	QETA1AM-107	E CAP	100 10V
C335	QER41CM-106	E CAP	10 16V
C336	QER41HM-105	E CAP	1.0 50V
C337	QER41HM-105	E CAP	1.0 50V
C338	QER41HM-105	E CAP	1.0 50V
C339	QEX41CM-156	E CAP	15 16V
C340	QCZ0206-104	C CAP	0.10
C341	QER41CM-106	E CAP	10 16V
C342	QFN41HJ-103	MY CAP	0.010 50V
C343	QETA1AM-107	E CAP	100 10V
C344	QCZ0206-104	C CAP	0.10
C345	QER41CM-476	E CAP	47 16V
C346	QETA1AM-107	E CAP	100 10V
C347	QER41CM-106	E CAP	10 16V
C348	QCZ0206-104	C CAP	0.10
C349	QFN41HJ-102	MY CAP	1000P 50V
C350	QFN41HJ-102	MY CAP	1000P 50V
C351	QCT25CH-221	C CAP	220P 50V
C352	QCT25CH-121	C CAP	120P 50V
C353	QER41CM-476	E CAP	47 16V
C354	QER41CM-476	E CAP	47 16V
C355	QER41CM-476	E CAP	47 16V
C356	QER41CM-476	E CAP	47 16V
C357	QER41CM-476	E CAP	47 16V
C358	QER41CM-476	E CAP	47 16V
C359	QER41CM-476	E CAP	47 16V
C360	QER41CM-476	E CAP	47 16V
C361	QER41CM-476	E CAP	47 16V
C362	QER41CM-476	E CAP	47 16V
C363	QCZ0206-104	C CAP	0.10
C364	QCZ0206-104	C CAP	0.10
C365	QCZ0206-104	C CAP	0.10
C366	QCZ0206-104	C CAP	0.10
C367	QCZ0206-104	C CAP	0.10
C368	QCZ0206-104	C CAP	0.10
C369	QCZ0206-104	C CAP	0.10
C370	QCZ0206-104	C CAP	0.10
C371	QCZ0206-104	C CAP	0.10
C372	QCZ0206-104	C CAP	0.10
C373	QCZ0206-104	C CAP	0.10
C374	QCZ0206-104	C CAP	0.10
C375	QCZ0206-104	C CAP	0.10
C376	QCZ0206-104	C CAP	0.10
C377	QCZ0206-104	C CAP	0.10
C378	QCZ0206-104	C CAP	0.10
C379	QCZ0206-104	C CAP	0.10
C380	QCZ0206-104	C CAP	0.10
C381	QCZ0206-104	C CAP	0.10
C382	QEX41CM-156	E CAP	15 16V
C383	QEX41CM-156	E CAP	15 16V
C384	QCZ0206-104	C CAP	0.10
C385	QCZ0206-104	C CAP	0.10
C386	QEX41CM-156	E CAP	15 16V
C387	QEX41CM-156	E CAP	15 16V
C388	QCZ0206-104	C CAP	0.10
C389	QCZ0206-104	C CAP	0.10
C390	QCZ0206-104	C CAP	0.10
C391	QCZ0206-104	C CAP	0.10
C392	QCZ0206-104	C CAP	0.10
C393	QCZ0206-104	C CAP	0.10
C394	QCZ0206-104	C CAP	0.10
C395	QCZ0206-104	C CAP	0.10
C396	QCZ0206-104	C CAP	0.10
C397	QCZ0206-104	C CAP	0.10
C398	QCZ0206-104	C CAP	0.10
C399	QEX41CM-156	E CAP	15 16V
C400	QCZ0206-104	C CAP	0.10
C401	QCZ0206-104	C CAP	0.10
C402	QCZ0206-104	C CAP	0.10
C403	QCZ0206-104	C CAP	0.10
C404	QCZ0206-104	C CAP	0.10
C405	QCZ0206-104	C CAP	0.10
C406	QCZ0206-104	C CAP	0.10
C407	QCZ0206-104	C CAP	0.10
C408	QEX41CM-156	E CAP	15 16V
C409	QCZ0206-104	C CAP	0.10
C410	QCZ0206-104	C CAP	0.10
C411	QCZ0206-104	C CAP	0.10
C412	QEX41CM-156	E CAP	15 16V
C413	QCZ0206-104	C CAP	0.10
C414	QCZ0206-104	C CAP	0.10
C415	QCZ0206-104	C CAP	0.10
C416	QCZ0206-104	C CAP	0.10
C417	QCZ0206-104	C CAP	0.10
C418	QCZ0206-104	C CAP	0.10
C419	QCT25CH-101	C CAP	100P 50V
C420	QCZ0206-104	C CAP	0.10
C421	QCZ0206-104	C CAP	0.10
C422	QCZ0206-104	C CAP	0.10
C423	QCZ0206-104	C CAP	0.10
C424	QEX41CM-156	E CAP	15 16V
C425	QCZ0206-104	C CAP	0.10
C426	QCZ0206-104	C CAP	0.10
C427	QCZ0206-104	C CAP	0.10

(EFF TBC)

Symbol No.	Part No.	Part Name	Description
C428	QCZ0206-104	C CAP	0.10
C429	QCZ0206-104	C CAP	0.10
C430	QCZ0206-104	C CAP	0.10
C431	QCZ0206-104	C CAP	0.10
C432	QCZ0206-104	C CAP	0.10
C433	QCZ0206-104	C CAP	0.10
C434	QCZ0206-104	C CAP	0.10
C435	QCZ0206-104	C CAP	0.10
C436	QCZ0206-104	C CAP	0.10
C437	QCZ0206-104	C CAP	0.10
C438	QCZ0206-104	C CAP	0.10
C439	QCZ0206-104	C CAP	0.10
C440	QCZ0206-104	C CAP	0.10
C441	QCZ0206-104	C CAP	0.10
C442	QCZ0206-104	C CAP	0.10
C443	QCZ0206-104	C CAP	0.10
C444	QCZ0206-104	C CAP	0.10
C445	QCZ0206-104	C CAP	0.10
C446	QCZ0206-104	C CAP	0.10
C447	QCZ0206-104	C CAP	0.10
C448	QCZ0206-104	C CAP	0.10
C452	QCT25CH-220	C CAP	22P 50V
C455	QCT25CH-390	C CAP	39P 50V
C460	QFN41HJ-102	MY CAP	1000P 50V
C463	QCZ0206-104	C CAP	0.10
C464	QCZ0206-104	C CAP	0.10
C465	QCZ0206-104	C CAP	0.10
C466	QCZ0206-104	C CAP	0.10
C467	QCZ0206-104	C CAP	0.10
C468	QCZ0206-104	C CAP	0.10
C469	QCZ0206-104	C CAP	0.10
C470	QCZ0206-104	C CAP	0.10
C471	QCZ0206-104	C CAP	0.10
C472	QCZ0206-104	C CAP	0.10
C473	QEX41CM-156	E CAP	15 16V
C474	QCZ0206-104	C CAP	0.10
C475	QCZ0206-104	C CAP	0.10
C476	QCZ0206-104	C CAP	0.10
C477	QCZ0206-104	C CAP	0.10
C478	QCZ0206-104	C CAP	0.10
C479	QCZ0206-104	C CAP	0.10
C480	QCZ0206-104	C CAP	0.10
C481	QCZ0206-104	C CAP	0.10
C482	QCZ0206-104	C CAP	0.10
C483	QCZ0206-104	C CAP	0.10
C484	QCZ0206-104	C CAP	0.10
C485	QCZ0206-104	C CAP	0.10
C486	QCT25CH-820	C CAP	82P 50V
C487	QEX41CM-156	E CAP	15 16V
C488	QCZ0206-104	C CAP	0.10
C490	QCZ0206-104	C CAP	0.10
C491	QCZ0206-104	C CAP	0.10
C492	QCT25CH-820	C CAP	82P 50V
L1	SCV0331-101	PEAKING COIL	100μH
L2	SCV0331-680	PEAKING COIL	68μH
L3	SCV0331-560	PEAKING COIL	56μH
L4	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)

Symbol No.	Part No.	Part Name	Description
L5	SCV0331-101	PEAKING COIL	100μH
L6	SCV0331-150	PEAKING COIL	15μH
L7	SCV0331-220	PEAKING COIL	22μH
L8	SCV0331-150	PEAKING COIL	15μH
L9	SCV0331-220	PEAKING COIL	22μH (U)
	SCV0331-180	PEAKING COIL	18μH (E)
L10	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L11	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L20	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L21	SCV0331-221	PEAKING COIL	220μH (U)
	SCV0331-101	PEAKING COIL	100μH (E)
L22	SCV0331-560	PEAKING COIL	56μH
L23	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)
L24	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L25	SCV0331-221	PEAKING COIL	220μH (U)
	SCV0331-101	PEAKING COIL	100μH (E)
L26	SCV0331-220	PEAKING COIL	22μH
L27	SCV0331-150	PEAKING COIL	15μH
L28	SCV0331-220	PEAKING COIL	22μH
L29	SCV0331-150	PEAKING COIL	15μH
L30	SCV0331-100	PEAKING COIL	10μH
L40	SCV1202-001	COIL	H LOCK
L41	BL02RN2-R62	FERRITE BEAD	H LOCK
L42	BL02RN2-R62	FERRITE BEAD	H LOCK
L43	BL02RN2-R62	FERRITE BEAD	H LOCK
L44	BL02RN2-R62	FERRITE BEAD	H LOCK
L45	BL02RN2-R62	FERRITE BEAD	H LOCK
L46	BL02RN2-R62	FERRITE BEAD	H LOCK
L47	BL02RN2-R62	FERRITE BEAD	H LOCK
L48	BL02RN2-R62	FERRITE BEAD	H LOCK
L49	BL02RN2-R62	FERRITE BEAD	H LOCK
LC1	EXC-EMT271BT	EMI FILTER	H LOCK
X1	SCV0347-001	CRYSTAL	14.3MHz (U)
	SCV0348-001	CRYSTAL	17.7MHz (E)
S1	SSV1449	ROTARY SWITCH	C POS
S2	QSS1A22-S02	SLIDE SWITCH	AUTO FREEZE
CN2	SCV1704-200	CONNECTOR	200 pin
P1	SCV1149-001	SHORT PLUG	SC TRAP
P2	SCV1149-001	SHORT PLUG	for adjustment

7.13 TBC board assembly list [1][3]

[1][3]☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	VC2100	I.C.(M)	JVC
IC2	TC4538BP	I.C.(M)	TOSHIBA (E)
IC3	M51271SP	I.C.(M)	MITSUBISHI
IC4	MC1495L	I.C.(M)	MOTOROLA
IC5	MC14577AP	I.C.(M)	MOTOROLA
IC6	TC4053BP	I.C.(M)	TOSHIBA
IC7	NJM082D	I.C.(M)	JRC
IC8	MC14577AP	I.C.(M)	MOTOROLA
IC9	NJM082D	I.C.(M)	JRC
IC10	MC14577AP	I.C.(M)	MOTOROLA
IC11	NJM082D	I.C.(M)	JRC
IC13	TA78L005AP	I.C.(M)	TOSHIBA
IC14	NJM7809FA	I.C.(M)	JRC
IC15	NJM79M09FA	I.C.(M)	JRC
IC20	AN614	I.C.(M)	MATSUSHITA
IC21	AN614	I.C.(M)	MATSUSHITA
IC22	TC74HC04AP	I.C.(M)	TOSHIBA
IC23	TC4053BP	I.C.(M)	TOSHIBA (E)
IC30	MB40568P-G-SK	I.C.(M)	FUJITSU
IC31	MB40568P-G-SK	I.C.(M)	FUJITSU
IC32	MB40568P-G-SK	I.C.(M)	FUJITSU
IC33	UPD74HC257C	I.C.(M)	NEC
IC34	UPD74HC257C	I.C.(M)	NEC
IC35	UPD42101C-1	I.C.(M)	NEC
IC36	UPD42101C-1	I.C.(M)	NEC
IC38	HM53051P-60	I.C.(M)	HITACHI
IC39	TC74HC298AP	I.C.(M)	TOSHIBA
IC40	HM53051P-60	I.C.(M)	HITACHI
IC41	HM53051P-60	I.C.(M)	HITACHI
IC42	TC74HC175AP	I.C.(M)	TOSHIBA
IC43	TC74HC374AP	I.C.(M)	TOSHIBA
IC49	SCV1205-024	IC SOCKET	JVC
IC49	GAL20V8-25Q-11	I.C.(M)	JVC
IC55	SCV1205-024	IC SOCKET	JVC
IC55	GAL20V8-25Q-12	I.C.(M)	JVC
IC56	RC4560DD	I.C.(M)	RAYTHEON
IC57	SN74HC74N	I.C.(M)	TEXAS
IC58	TC74HCU04AP	I.C.(M)	TOSHIBA
IC59	TC74HC04AP	I.C.(M)	TOSHIBA
IC60	TC74HC04AP	I.C.(M)	TOSHIBA
IC61	TC74HC04AP	I.C.(M)	TOSHIBA
IC62	TA78L005AP	I.C.(M)	TOSHIBA
IC63	UPD74HC123AC	I.C.(M)	NEC
IC64	SN74HC74N	I.C.(M)	TEXAS
IC65	TC74HC221AP	I.C.(M)	TOSHIBA
IC66	UPD74HC123AC	I.C.(M)	NEC
IC67	UPD74HC123AC	I.C.(M)	NEC
IC68	UPD74HC123AC	I.C.(M)	NEC
IC69	TA78L005AP	I.C.(M)	TOSHIBA
IC70	TC74HC00AP	I.C.(M)	TOSHIBA
IC71	TC74HC14AP	I.C.(M)	TOSHIBA
IC72	TC74HCU04AP	I.C.(M)	TOSHIBA
IC73	SN74HC74N	I.C.(M)	TEXAS
IC74	SN74HC74N	I.C.(M)	TEXAS
IC75	UPD74HC161C	I.C.(M)	NEC
IC76	UPD74HC161C	I.C.(M)	NEC
IC77	UPD74HC161C	I.C.(M)	NEC
IC78	SCV1205-024	IC SOCKET	JVC
IC78	GAL20V8-25Q-13	I.C.(M)	JVC
IC79	UPD74HC161C	I.C.(M)	NEC

Symbol No.	Part No.	Part Name	Description
IC80	UPD74HC161C	I.C.(M)	NEC
IC81	UPD74HC161C	I.C.(M)	NEC
IC82	SCV1205-024	IC SOCKET	JVC
IC82	GAL20V8-25Q-22	I.C.(M)	JVC (U)
	GAL20V8-25Q-21	I.C.(M)	JVC (E)
IC83	SN74HC74N	I.C.(M)	TEXAS
IC84	MB40778P-G	I.C.(M)	FUJITSU
IC85	MB40778P-G	I.C.(M)	FUJITSU
IC86	MB40778P-G	I.C.(M)	FUJITSU
IC87	SN74HC74N	I.C.(M)	TEXAS
IC88	SN74HC74N	I.C.(M)	TEXAS
IC89	SN74HC74N	I.C.(M)	TEXAS
IC90	TC74HC4066AP	I.C.(M)	TOSHIBA
IC91	NJM082D	I.C.(M)	JRC
IC92	UPD74HC161C	I.C.(M)	NEC
IC93	UPD74HC161C	I.C.(M)	NEC
IC94	UPD74HC161C	I.C.(M)	NEC
IC95	SCV1205-024	IC SOCKET	JVC
IC95	GAL20V8-25Q-14	I.C.(M)	JVC
IC96	TC74HC40103AP	I.C.(M)	TOSHIBA
IC97	UPD74HC161C	I.C.(M)	NEC
IC98	UPD74HC161C	I.C.(M)	NEC
IC99	SN74HC112N	I.C.(M)	TEXAS
IC102	NJM311D	I.C.(M)	JRC
IC104	UPD74HC123AC	I.C.(M)	NEC
IC105	TC74HC00AP	I.C.(M)	TOSHIBA
IC106	TA78L005AP	I.C.(M)	TOSHIBA
Q1	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q3	2SA564(R)	TRANSISTOR	MATSUSHITA
Q4	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q5	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q6	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q7	2SA564(R)	TRANSISTOR	MATSUSHITA
Q8	2SA564(R)	TRANSISTOR	MATSUSHITA
Q9	2SA564(R)	TRANSISTOR	MATSUSHITA
Q10	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q11	2SA564(R)	TRANSISTOR	MATSUSHITA
Q12	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q13	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q14	2SA564(R)	TRANSISTOR	MATSUSHITA
Q15	2SA564(R)	TRANSISTOR	MATSUSHITA
Q16	2SA564(R)	TRANSISTOR	MATSUSHITA
Q17	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q18	2SA564(R)	TRANSISTOR	MATSUSHITA
Q19	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q20	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q21	2SA564(R)	TRANSISTOR	MATSUSHITA
Q22	2SA564(R)	TRANSISTOR	MATSUSHITA
Q23	2SA564(R)	TRANSISTOR	MATSUSHITA
Q30	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q31	2SA564(R)	TRANSISTOR	MATSUSHITA
Q32	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q33	2SA564(R)	TRANSISTOR	MATSUSHITA
Q34	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q35	2SC1685(R)	TRANSISTOR	MATSUSHITA
Q36	2SK163(M.N)	FET	NEC
Q37	2SA564(R)	TRANSISTOR	MATSUSHITA
Q38	2SC1685(R)	TRANSISTOR	MATSUSHITA

(TBC)

Symbol No.	Part No.	Part Name	Description	
Q39	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q40	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q41	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q42	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q43	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q44	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q45	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q46	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q47	2SK163(M.N)	FET	NEC	
Q48	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q49	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q50	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q51	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q52	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q53	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q54	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q55	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q56	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q57	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q58	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q59	2SA564(R)	TRANSISTOR	MATSUSHITA	
Q60	2SC1685(R)	TRANSISTOR	MATSUSHITA	
Q62	2SC1685(R)	TRANSISTOR	MATSUSHITA	(E)
D1	SVC321(A)	VARI CAP DIODE	SANYO	
D2	MA165	DIODE	MATSUSHITA	
D3	MA165	DIODE	MATSUSHITA	
D4	MA165	DIODE	MATSUSHITA	
D5	MA165	DIODE	MATSUSHITA	
D6	MA165	DIODE	MATSUSHITA	
R1	QRD161J-392	CR	3.9K	1/6W
R2	QRD161J-103	CR	10K	1/6W
R3	QRD161J-102	CR	1.0K	1/6W
R4	QRD161J-102	CR	1.0K	1/6W
R5	QRD161J-102	CR	1.0K	1/6W
R6	QRD161J-472	CR	4.7K	1/6W
R7	QRD161J-472	CR	4.7K	1/6W
R8	QRD161J-102	CR	1.0K	1/6W
R9	QRD161J-122	CR	1.2K	1/6W
R10	QRD161J-823	CR	82K	1/6W
R11	QRD161J-123	CR	12K	1/6W
R12	QRD161J-123	CR	12K	1/6W
R13	QRD161J-103	CR	10K	1/6W(E)
R14	QRD161J-333	CR	33K	1/6W(E)
R15	QRD161J-0R0	CR	0	1/6W(U)
R16	QRD161J-153	CR	15K	1/6W
R17	QRD161J-103	CR	10K	1/6W
R18	QRD161J-681	CR	680	1/6W
R19	QRD161J-102	CR	1.0K	1/6W
R20	QRD161J-221	CR	220	1/6W
R21	QRD161J-122	CR	1.2K	1/6W
R22	QRD161J-222	CR	2.2K	1/6W
R23	QRD161J-823	CR	82K	1/6W
R24	QRD161J-222	CR	2.2K	1/6W
R25	QRD161J-393	CR	39K	1/6W
R26	QRD161J-0R0	CR	0	1/6W(E)
R27	QRD161J-223	CR	22K	1/6W
R28	QRD161J-223	CR	22K	1/6W

Symbol No.	Part No.	Part Name	Description	
R29	QRD161J-223	CR	22K	1/6W
R30	QRD161J-474	CR	470K	1/6W
R31	QRD161J-152	CR	1.5K	1/6W
R32	QRD161J-101	CR	100	1/6W(U)
	QRD161J-470	CR	47	1/6W(E)
R33	QRD161J-221	CR	220	1/6W(U)
	QRD161J-101	CR	100	1/6W(E)
R34	QRD161J-152	CR	1.5K	1/6W
R36	QRD161J-221	CR	220	1/6W
R37	QRD161J-273	CR	27K	1/6W
R38	QRD161J-153	CR	15K	1/6W
R39	QRD161J-152	CR	1.5K	1/6W(U)
R41	QRD161J-102	CR	1.0K	1/6W(U)
R42	QRD161J-223	CR	22K	1/6W
R43	QRD161J-153	CR	15K	1/6W(U)
R44	QRD161J-223	CR	22K	1/6W(E)
R45	QRD161J-103	CR	10K	1/6W
R46	QRD161J-103	CR	10K	1/6W
R47	QRD161J-103	CR	10K	1/6W
R48	QRD161J-103	CR	10K	1/6W
R49	QRD161J-102	CR	1.0K	1/6W
R50	QRD161J-271	CR	270	1/6W
R51	QRD161J-102	CR	1.0K	1/6W
R52	QRD161J-102	CR	1.0K	1/6W
R53	QRD161J-222	CR	2.2K	1/6W
R54	QRD161J-272	CR	2.7K	1/6W
R55	QRD161J-272	CR	2.7K	1/6W
R56	QRD161J-272	CR	2.7K	1/6W
R57	QRD161J-393	CR	39K	1/6W
R58	QRD161J-153	CR	15K	1/6W
R59	QRD161J-122	CR	1.2K	1/6W
R60	QRD161J-471	CR	470	1/6W
R61	QRD161J-272	CR	2.7K	1/6W
R62	QRD161J-471	CR	470	1/6W
R63	QRD161J-471	CR	470	1/6W
R64	QRD161J-222	CR	2.2K	1/6W
R65	QRD161J-331	CR	330	1/6W
R66	QRD161J-681	CR	680	1/6W
R67	QRD161J-222	CR	2.2K	1/6W
R68	QRD161J-102	CR	1.0K	1/6W
R69	QRD161J-103	CR	10K	1/6W
R70	QRD161J-222	CR	2.2K	1/6W
R71	QRD161J-222	CR	2.2K	1/6W
R72	QRD161J-472	CR	4.7K	1/6W
R73	QRD161J-273	CR	27K	1/6W
R74	QRD161J-562	CR	5.6K	1/6W
R75	QRD161J-102	CR	1.0K	1/6W
R76	QRD161J-182	CARBON RESISTOR	1.8K	1/6W
R77	QRD161J-333	CR	33K	1/6W
R78	QRD161J-392	CR	3.9K	1/6W
R79	QRD161J-331	CR	330	1/6W
R80	QRD161J-152	CR	1.5K	1/6W
R82	QRD161J-271	CR	270	1/6W
R83	QRD161J-152	CR	1.5K	1/6W
R86	QRD161J-101	CR	100	1/6W
R87	QRD161J-102	CR	1.0K	1/6W
R88	QRD161J-222	CR	2.2K	1/6W
R89	QRD161J-471	CR	470	1/6W
R90	QRD161J-471	CR	470	1/6W

Symbol No.	Part No.	Part Name	Description	
R91	QRD161J-393	CR	39K	1/6W
R92	QRD161J-153	CR	15K	1/6W
R93	QRD161J-122	CR	1.2K	1/6W
R94	QRD161J-471	CR	470	1/6W
R95	QRD161J-272	CR	2.7K	1/6W
R96	QRD161J-331	CR	330	1/6W
R97	QRD161J-331	CR	330	1/6W
R98	QRD161J-222	CR	2.2K	1/6W
R99	QRD161J-471	CR	470	1/6W
R100	QRD161J-561	CR	560	1/6W
R101	QRD161J-222	CR	2.2K	1/6W
R102	QRD161J-102	CR	1.0K	1/6W
R103	QRD161J-103	CR	10K	1/6W
R104	QRD161J-470	CR	47	1/6W
R105	QRD161J-332	CR	3.3K	1/6W
R106	QRD161J-272	CR	2.7K	1/6W
R108	QRD161J-101	CR	100	1/6W
R109	QRD161J-102	CR	1.0K	1/6W
R110	QRD161J-222	CR	2.2K	1/6W
R111	QRD161J-391	CR	390	1/6W
R112	QRD161J-471	CR	470	1/6W
R113	QRD161J-393	CR	39K	1/6W
R114	QRD161J-153	CR	15K	1/6W
R115	QRD161J-152	CR	1.5K	1/6W
R116	QRD161J-471	CR	470	1/6W
R117	QRD161J-272	CR	2.7K	1/6W
R118	QRD161J-331	CR	330	1/6W
R119	QRD161J-331	CR	330	1/6W
R120	QRD161J-222	CR	2.2K	1/6W
R121	QRD161J-471	CR	470	1/6W
R122	QRD161J-561	CR	560	1/6W
R123	QRD161J-222	CR	2.2K	1/6W
R124	QRD161J-102	CR	1.0K	1/6W
R125	QRD161J-103	CR	10K	1/6W
R126	QRD161J-470	CR	47	1/6W
R127	QRD161J-822	CR	8.2K	1/6W
R128	QRD161J-222	CR	2.2K	1/6W
R129	QRD161J-105	CR	1.0M	1/6W
R130	QRD161J-823	CR	82K	1/6W
R131	QRD161J-823	CR	82K	1/6W
R132	QRD161J-472	CR	4.7K	1/6W
R133	QRD161J-472	CR	4.7K	1/6W
R134	QRD161J-684	CR	680K	1/6W
R160	QRD161J-392	CR	3.9K	1/6W
R161	QRD161J-222	CR	2.2K	1/6W
R162	QRD161J-331	CR	330	1/6W
R163	QRD161J-331	CR	330	1/6W
R164	QRD161J-332	CR	3.3K	1/6W
R166	QRD161J-222	CR	2.2K	1/6W
R167	QRD161J-222	CR	2.2K	1/6W
R168	QRD161J-392	CR	3.9K	1/6W
R171	QRD161J-221	CR	220	1/6W
R175	QRD161J-102	CR	1.0K	1/6W
R176	QRD161J-102	CR	1.0K	1/6W
R177	QRD161J-223	CR	22K	1/6W
R178	QRD161J-153	CR	15K	1/6W
R179	QRD161J-392	CR	3.9K	1/6W
R180	QRD161J-105	CR	1.0M	1/6W
R181	QRD161J-223	CR	22K	1/6W

Symbol No.	Part No.	Part Name	Description	
R182	QRD161J-220	CR	22	1/6W
R183	QRD161J-220	CR	22	1/6W
R184	QRD161J-392	CR	3.9K	1/6W
R185	QRD161J-222	CR	2.2K	1/6W
R186	QRD161J-0R0	CR	0	1/6W (U)
R187	QRD161J-0R0	CR	0	1/6W (U)
R188	QRD161J-102	CR	1.0K	1/6W
R189	QRD161J-222	CR	2.2K	1/6W
R190	QRD161J-102	CR	1.0K	1/6W
R191	QRD161J-393	CR	39K	1/6W
R192	QRD161J-333	CR	33K	1/6W
R193	QRD161J-471	CR	470	1/6W
R194	QRD161J-332	CR	3.3K	1/6W
R195	QRD161J-222	CR	2.2K	1/6W
R196	QRD161J-331	CR	330	1/6W
R197	QRD161J-331	CR	330	1/6W
R198	QRD161J-332	CR	3.3K	1/6W
R200	QRD161J-222	CR	2.2K	1/6W
R201	QRD161J-222	CR	2.2K	1/6W
R202	QRD161J-222	CR	2.2K	1/6W
R203	QRD161J-102	CR	1.0K	1/6W
R204	QRD161J-102	CR	1.0K	1/6W
R205	QRD161J-392	CR	3.9K	1/6W
R206	QRD161J-681	CR	680	1/6W
R208	QRD161J-102	CR	1.0K	1/6W
R209	QRD161J-102	CR	1.0K	1/6W
R210	QRD161J-223	CR	22K	1/6W
R211	QRD161J-153	CR	15K	1/6W
R212	QRD161J-392	CR	3.9K	1/6W
R213	QRD161J-105	CR	1.0M	1/6W
R214	QRD161J-223	CR	22K	1/6W
R215	QRD161J-102	CR	1.0K	1/6W
R216	QRD161J-222	CR	2.2K	1/6W
R217	QRD161J-0R0	CR	0	1/6W (U)
R218	QRD161J-123	CR	12K	1/6W (E)
R219	QRD161J-102	CR	1.0K	1/6W
R220	QRD161J-331	CR	330	1/6W (U)
	QRD161J-221	CR	220	1/6W (E)
R221	QRD161J-102	CR	1.0K	1/6W
R222	QRD161J-273	CR	27K	1/6W
R223	QRD161J-273	CR	27K	1/6W
R224	QRD161J-221	CR	220	1/6W
R225	QRD161J-102	CR	1.0K	1/6W
R226	QRD161J-102	CR	1.0K	1/6W
R227	QRD161J-222	CR	2.2K	1/6W
R228	QRD161J-471	CR	470	1/6W
R229	QRD161J-471	CR	470	1/6W
R230	QRD161J-332	CR	3.3K	1/6W
R231	QRD161J-822	CR	8.2K	1/6W
R232	QRD161J-681	CR	680	1/6W
R233	QRD161J-561	CR	560	1/6W
R234	QRD161J-392	CR	3.9K	1/6W
R235	QRD161J-471	CR	470	1/6W
R237	QRD161J-272	CR	2.7K	1/6W
R238	QRD161J-122	CR	1.2K	1/6W
R239	QRD161J-222	CR	2.2K	1/6W
R240	QRD161J-153	CR	15K	1/6W
R241	QRD161J-223	CR	22K	1/6W
R242	QRD161J-152	CR	1.5K	1/6W

(TBC)

Symbol No.	Part No.	Part Name	Description
R244	QRD161J-102	CR	1.0K 1/6W
R245	QRD161J-102	CR	1.0K 1/6W
R246	QRD161J-102	CR	1.0K 1/6W
R247	QRD161J-153	CR	15K 1/6W
R248	QRD161J-223	CR	22K 1/6W
R249	QRD161J-102	CR	1.0K 1/6W
R252	QRD161J-103	CR	10K 1/6W (E)
R253	QRD161J-223	CR	22K 1/6W (E)
R254	QRD161J-392	CR	3.9K 1/6W (E)
R300	QRD161J-221	CR	220 1/6W
R301	QRD161J-221	CR	220 1/6W
R302	QRD161J-221	CR	220 1/6W
R303	QRD161J-102	CR	1.0K 1/6W
R304	QRD161J-223	CR	22K 1/6W
R305	QRD161J-103	CR	10K 1/6W
R306	QRD161J-103	CR	10K 1/6W
R307	QRD161J-103	CR	10K 1/6W
R308	QRD161J-223	CR	22K 1/6W
R309	QRD161J-473	CR	47K 1/6W
R310	QRD161J-224	CR	220K 1/6W
R311	QRD161J-333	CR	33K 1/6W
R312	QRD161J-473	CR	47K 1/6W
R313	QRD161J-102	CR	1.0K 1/6W
R314	QRD161J-473	CR	47K 1/6W
R315	QRD161J-223	CR	22K 1/6W
R316	QRD161J-683	CR	68K 1/6W
R317	QRD161J-0R0	CR	0Ω 1/6W
R318	QRD161J-104	CR	100K 1/6W
R319	QRD161J-681	CR	680 1/6W
R320	QRD161J-472	CR	4.7K 1/6W
R321	QRD161J-103	CR	10K 1/6W
R322	QRD161J-222	CR	2.2K 1/6W
R323	QRD161J-103	CR	10K 1/6W
R325	QRD161J-473	CR	47K 1/6W
R326	QRD161J-103	CR	10K 1/6W
R327	QRD161J-331	CR	330 1/6W
R328	QRD161J-104	CR	100K 1/6W
R343	QRD161J-222	CR	2.2K 1/6W
R344	QRD161J-473	CR	47K 1/6W
R345	QRD161J-273	CR	27K 1/6W
R346	QRD161J-224	CR	220K 1/6W
R348	QRD161J-223	CR	22K 1/6W
R351	QRD161J-102	CR	1.0K 1/6W
R353	QRD161J-473	CR	47K 1/6W
R354	QRD161J-103	CR	10K 1/6W
R357	QRD161J-104	CR	100K 1/6W
R358	QRD161J-471	CR	470 1/6W
R359	QRD161J-332	CR	3.3K 1/6W
R364	QRD161J-0R0	CR	0 1/6W (E)
R365	QRD161J-0R0	CR	0 1/6W (U)
R369	QRD161J-474	CR	470K 1/6W (U)
R370	QRD161J-103	CR	10K 1/6W
VR1	QVPB613-103	TRIM.RESISTOR	10K R-Y AD LEV
VR2	QVPB613-103	TRIM.RESISTOR	10K HUE
VR3	QVPB613-501	TRIM.RESISTOR	500 Y AD LEV
VR4	QVPB613-202	TRIM.RESISTOR	2K SET UP
VR5	QVPB613-102	TRIM.RESISTOR	1K R-Y PED
VR6	QVPB613-102	TRIM.RESISTOR	1K B-Y PED

Symbol No.	Part No.	Part Name	Description
VR7	QVPB613-501	TRIM.RESISTOR	500 B-Y AD LEV
VR8	QVPB613-202	TRIM.RESISTOR	2K R-Y EQ
VR9	QVPB613-102	TRIM.RESISTOR	1K PHASE
VR10	QVPB613-501	TRIM.RESISTOR	500 R-Y LEV
VR12	QVPB613-102	TRIM.RESISTOR	1K C BAL 1
VR13	QVPB613-102	TRIM.RESISTOR	1K C BAL 2
VR14	QVPB613-102	TRIM.RESISTOR	1K C BAL 3 (E)
VR15	QVPB613-501	TRIM.RESISTOR	500 C LEV
VR16	QVPB613-202	TRIM.RESISTOR	2K B-Y EQ
VR17	QVPB613-501	TRIM.RESISTOR	500 QUAD
VR18	QVPB613-202	TRIM.RESISTOR	2K Y EQ
VR19	QVPB613-501	TRIM.RESISTOR	500 Y LEV
VR30	QVPB613-203	TRIM.RESISTOR	20K H POS
VR31	QVPB613-102	TRIM.RESISTOR	1K DA REF
C1	QEPA0JM-476	NP CAP	47 6.3V
C2	QEPA0JM-476	NP CAP	47 6.3V
C3	QCT25UJ-100	C CAP	10P 50V
C4	QCT25UJ-390	C CAP	39P 50V
C5	QCT25UJ-221	C CAP	220P 50V
C6	QER41CM-476	E CAP	47 16V
C7	QCZ0206-104	C CAP	0.10
C8	QEJ41VM-474	T CAP	0.47 35V
C9	QEJ41VM-474	T CAP	0.47 35V
C10	QEJ41VM-474	T CAP	0.47 35V
C11	QCT25UJ-270	C CAP	27P 50V
C12	QCT25UJ-221	C CAP	220P 50V
C13	QEJ41VM-474	T CAP	0.47 35V
C14	QER41HM-105	E CAP	1.0 50V
C15	QCT25CH-221	C CAP	220P 50V
C16	QCT25CH-221	C CAP	220P 50V
C17	QFN41HJ-392	MY CAP	3900P 50V (E)
C18	QCT25CH-470	C CAP	47P 50V (E)
C19	QER41CM-476	E CAP	47 16V
C20	QCT25UJ-820	C CAP	82P 50V (U)
	QCT25UJ-270	C CAP	27P 50V (E)
C21	QCT25UJ-560	C CAP	56P 50V
C22	QEJ41VM-474	T CAP	0.47 35V
C23	QER41HM-105	E CAP	1.0 50V
C24	QEPA0JM-476	NP CAP	47 6.3V
C25	QFN41HJ-473	MY CAP	0.047 50V
C26	QFN41HJ-103	MY CAP	0.010 50V
C27	QFN41HJ-103	MY CAP	0.010 50V
C28	QER41CM-476	E CAP	47 16V
C29	QCZ0206-104	C CAP	0.10
C30	QFN41HJ-102	MY CAP	1000P 50V
C31	QCZ0206-104	C CAP	0.10
C32	QFN41HJ-103	MY CAP	0.010 50V
C34	QFN41HJ-103	MY CAP	0.010 50V
C35	QER41HM-105	E CAP	1.0 50V
C36	QER41CM-476	E CAP	47 16V
C37	QCZ0206-104	C CAP	0.10
C38	QFN41HJ-104	MYLAR CAPACITOR	0.10 50V
C39	QEPA1HM-105	NP CAP	1.0 50V
C40	QAT3120-100	TR CAP	VCXO
C41	QEJ41VM-474	T CAP	0.47 35V
C42	QFN41HJ-102	MY CAP	1000P 50V (U)
	QCS11HJ-561	C CAP	560P 50V (E)
C43	QCT25CH-100	C CAP	10P 50V

Symbol No.	Part No.	Part Name	Description	
C44	QFN41HJ-103	MY CAP	0.010	50V
C45	QER41CM-106	E CAP	10	16V
C46	QER41CM-106	E CAP	10	16V (U)
C47	QER41CM-476	E CAP	47	16V
C48	QER41CM-106	E CAP	10	16V
C49	QER41HM-105	E CAP	1.0	50V
C50	QER41CM-476	E CAP	47	16V
C51	QCZ0206-104	C CAP	0.10	
C52	QER41CM-106	E CAP	10	16V
C53	QCT25CH-470	C CAP	47P	50V
C54	QER41CM-476	E CAP	47	16V
C55	QCT25UJ-220	C CAP	22P	50V
C56	QCT25UJ-101	C CAP	100P	50V
C57	QCT25UJ-101	C CAP	100P	50V
C58	QCT25UJ-220	C CAP	22P	50V
C59	QCT25UJ-270	C CAP	27P	50V
C60	QCT25UJ-220	C CAP	22P	50V (U)
	QCT25UJ-330	C CAP	33P	50V (E)
C61	QCT25UJ-680	C CAP	68P	50V (U)
	QCT25UJ-390	C CAP	39P	50V (E)
C62	QCT25CH-3R0	C CAP	3.0P	50V
C63	QCZ0206-104	C CAP	0.10	
C64	QER41CM-106	E CAP	10	16V
C65	QCT25CH-221	C CAP	220P	50V
C66	QCZ0206-104	C CAP	0.10	
C67	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C68	QFN41HJ-103	MY CAP	0.010	50V
C69	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C70	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C71	QER41CM-106	E CAP	10	16V
C72	QER41CM-106	E CAP	10	16V
C73	QER41CM-476	E CAP	47	16V
C74	QCT25CH-560	C CAP	56P	50V
C75	QCZ0206-104	C CAP	0.10	
C76	QER41CM-106	E CAP	10	16V
C77	QER41CM-476	E CAP	47	16V
C78	QER41CM-476	E CAP	47	16V
C79	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C80	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C81	QCT25UJ-180	C CAP	18P	50V
C82	QCT25CH-560	C CAP	56P	50V
C83	QER41CM-106	E CAP	10	16V
C84	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C85	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C86	QER41CM-106	E CAP	10	16V
C87	QER41CM-106	E CAP	10	16V
C88	QER41CM-476	E CAP	47	16V
C89	QCT25CH-470	C CAP	47P	50V
C90	QCZ0206-104	C CAP	0.10	
C91	QER41CM-106	E CAP	10	16V
C92	QER41CM-476	E CAP	47	16V
C93	QER41CM-476	E CAP	47	16V
C94	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C95	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C96	QCT25UJ-180	C CAP	18P	50V
C97	QCT25CH-560	C CAP	56P	50V

Symbol No.	Part No.	Part Name	Description	
C98	QER41CM-106	E CAP	10	16V
C99	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C100	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C101	QER41CM-106	E CAP	10	16V
C102	QER41CM-106	E CAP	10	16V
C103	QCT25CH-100	C CAP	10P	50V
C104	QCZ0206-104	C CAP	0.10	(E)
C105	QER41CM-476	E CAP	47	16V (E)
C106	QCZ0206-104	C CAP	0.10	
C107	QER41CM-476	E CAP	47	16V
C108	QCZ0206-104	C CAP	0.10	
C109	QCZ0206-104	C CAP	0.10	
C110	QCZ0206-104	C CAP	0.10	
C111	QCZ0206-104	C CAP	0.10	
C112	QCZ0206-104	C CAP	0.10	
C113	QCZ0206-104	C CAP	0.10	
C114	QCZ0206-104	C CAP	0.10	
C115	QETA1AM-107	E CAP	100	10V
C117	QETA1EM-107	E CAP	100	25V
C118	QCZ0206-104	C CAP	0.10	
C119	QCZ0206-104	C CAP	0.10	
C120	QETA1CM-107	E CAP	100	16V
C121	QER41CM-476	E CAP	47	16V
C122	QER41CM-476	E CAP	47	16V
C123	QER41CM-476	E CAP	47	16V
C125	QETA1EM-107	E CAP	100	25V
C126	QCZ0206-104	C CAP	0.10	
C127	QCZ0206-104	C CAP	0.10	
C128	QETA1CM-107	E CAP	100	16V
C129	QER41CM-476	E CAP	47	16V
C130	QER41CM-476	E CAP	47	16V
C131	QER41CM-476	E CAP	47	16V
C140	QER41CM-476	E CAP	47	16V
C141	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C142	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C143	QCT25UJ-180	C CAP	18P	50V
C144	QCT25UJ-331	C CAP	330P	50V (U)
	QCT25UJ-181	C CAP	180P	50V (E)
C145	QEPA0JM-476	NP CAP	47	6.3V
C147	QER41CM-476	E CAP	47	16V
C148	QEJ41VM-104	T CAP	0.10	35V
C149	QER41CM-476	E CAP	47	16V
C150	QCZ0206-104	C CAP	0.10	
C151	QCZ0206-104	C CAP	0.10	(U)
C152	QCZ0206-104	C CAP	0.10	
C153	QFN41HJ-103	MY CAP	0.010	50V
C154	QFN41HJ-103	MY CAP	0.010	50V
C155	QEPA1HM-105	NP CAP	1.0	50V
C156	QER41CM-476	E CAP	47	16V
C157	QCT25UJ-820	C CAP	82P	50V (U)
	QCT25UJ-270	C CAP	27P	50V (E)
C158	QCT25UJ-560	C CAP	56P	50V
C161	QER41CM-476	E CAP	47	16V
C162	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C163	QCS11HJ-561	C CAP	560P	50V (U)
	QCT25UJ-331	C CAP	330P	50V (E)
C164	QCT25UJ-180	C CAP	18P	50V

(TBC)

Symbol No.	Part No.	Part Name	Description
C165	QCT25UJ-331	C CAP	330P 50V(U)
	QCT25UJ-181	C CAP	180P 50V(E)
C166	QEPA0JM-476	NP CAP	47 6.3V
C167	QER41CM-476	E CAP	47 16V
C168	QEJ41VM-104	T CAP	0.10 35V
C169	QCZ0206-104	C CAP	0.10
C170	QCZ0206-104	C CAP	0.10
C171	QFN41HJ-103	MY CAP	0.010 50V
C172	QCZ0206-104	C CAP	0.10
C173	QEPA1HM-105	NP CAP	1.0 50V
C174	QCZ0206-104	C CAP	0.10 (E)
C175	QCZ0206-104	C CAP	0.10 (E)
C176	QCZ0206-104	C CAP	0.10 (E)
C177	QCT25UJ-151	C CAP	150P 50V(U)
	QCT25UJ-121	C CAP	120P 50V(E)
C178	QFN41HJ-103	MY CAP	0.010 50V
C179	QCT25CH-820	C CAP	82P 50V
C180	QER41CM-476	E CAP	47 16V
C181	QER41CM-476	E CAP	47 16V
C182	QER41CM-476	E CAP	47 16V
C183	QCT25UJ-220	C CAP	22P 50V
C184	QCT25UJ-101	C CAP	100P 50V
C185	QCT25UJ-101	C CAP	100P 50V
C186	QCT25UJ-220	C CAP	22P 50V
C187	QCT25UJ-270	C CAP	27P 50V
C188	QCT25UJ-820	C CAP	82P 50V
C189	QER41CM-476	E CAP	47 16V
C191	QER41CM-476	E CAP	47 16V
C192	QER41CM-476	E CAP	47 16V
C193	QCT25CH-121	C CAP	120P 50V(E)
C194	QCZ0206-104	C CAP	0.10
C195	QER41CM-476	E CAP	47 16V
C196	QCZ0206-104	C CAP	0.10 (E)
C197	QCT25CH-680	C CAP	68P 50V
C300	QCT25CH-820	C CAP	82P 50V
C301	QCT25CH-820	C CAP	82P 50V
C302	QFN41HJ-102	MY CAP	1000P 50V
C303	QFN41HJ-333	MY CAP	0.033 50V
C304	QCT25CH-820	C CAP	82P 50V
C305	QCT25CH-820	C CAP	82P 50V
C306	QFN41HJ-102	MY CAP	1000P 50V
C307	QCT25CH-820	C CAP	82P 50V
C308	QCT25CH-820	C CAP	82P 50V
C309	QFN41HJ-333	MY CAP	0.033 50V
C310	QCT25CH-820	C CAP	82P 50V
C311	QER41EM-475	E CAP	4.7 25V
C312	QCZ0206-104	C CAP	0.10
C313	QCT25CH-101	C CAP	100P 50V
C314	QER41CM-106	E CAP	10 16V
C315	QFN41HJ-103	MY CAP	0.010 50V
C316	QCT25CH-221	C CAP	220P 50V
C317	QFN41HJ-102	MY CAP	1000P 50V
C318	QFN41HJ-102	MY CAP	1000P 50V
C319	QFN41HJ-333	MY CAP	0.033 50V
C325	QER41CM-106	E CAP	10 16V
C326	QER41CM-106	E CAP	10 16V
C327	QER41CM-106	E CAP	10 16V
C328	QER41CM-476	E CAP	47 16V
C329	QCZ0206-104	C CAP	0.10
C330	QETA1AM-107	E CAP	100 10V

Symbol No.	Part No.	Part Name	Description
C331	QER41CM-106	E CAP	10 16V
C332	QER41CM-476	E CAP	47 16V
C333	QER41CM-106	E CAP	10 16V
C334	QETA1AM-107	E CAP	100 10V
C335	QER41CM-106	E CAP	10 16V
C336	QER41HM-105	E CAP	1.0 50V
C337	QER41HM-105	E CAP	1.0 50V
C338	QER41HM-105	E CAP	1.0 50V
C339	QEX41CM-156	E CAP	15 16V
C340	QCZ0206-104	C CAP	0.10
C341	QER41CM-106	E CAP	10 16V
C342	QFN41HJ-103	MY CAP	0.010 50V
C343	QETA1AM-107	E CAP	100 10V
C344	QCZ0206-104	C CAP	0.10
C345	QER41CM-476	E CAP	47 16V
C346	QETA1AM-107	E CAP	100 10V
C347	QER41CM-106	E CAP	10 16V
C348	QCZ0206-104	C CAP	0.10
C349	QFN41HJ-102	MY CAP	1000P 50V
C350	QFN41HJ-102	MY CAP	1000P 50V
C351	QCT25CH-221	C CAP	220P 50V
C352	QCT25CH-121	C CAP	120P 50V
C353	QER41CM-476	E CAP	47 16V
C354	QER41CM-476	E CAP	47 16V
C355	QER41CM-476	E CAP	47 16V
C356	QER41CM-476	E CAP	47 16V
C357	QER41CM-476	E CAP	47 16V
C358	QER41CM-476	E CAP	47 16V
C359	QER41CM-476	E CAP	47 16V
C360	QER41CM-476	E CAP	47 16V
C361	QER41CM-476	E CAP	47 16V
C362	QER41CM-476	E CAP	47 16V
C363	QCZ0206-104	C CAP	0.10
C364	QCZ0206-104	C CAP	0.10
C365	QCZ0206-104	C CAP	0.10
C366	QCZ0206-104	C CAP	0.10
C367	QCZ0206-104	C CAP	0.10
C368	QCZ0206-104	C CAP	0.10
C369	QCZ0206-104	C CAP	0.10
C370	QCZ0206-104	C CAP	0.10
C371	QCZ0206-104	C CAP	0.10
C372	QCZ0206-104	C CAP	0.10
C374	QCZ0206-104	C CAP	0.10
C375	QCZ0206-104	C CAP	0.10
C376	QCZ0206-104	C CAP	0.10
C377	QCZ0206-104	C CAP	0.10
C378	QCZ0206-104	C CAP	0.10
C379	QCZ0206-104	C CAP	0.10
C383	QEX41CM-156	E CAP	15 16V
C387	QEX41CM-156	E CAP	15 16V
C388	QCZ0206-104	C CAP	0.10
C389	QCZ0206-104	C CAP	0.10
C390	QCZ0206-104	C CAP	0.10
C391	QCZ0206-104	C CAP	0.10
C392	QCZ0206-104	C CAP	0.10
C393	QCZ0206-104	C CAP	0.10
C394	QCZ0206-104	C CAP	0.10
C395	QCZ0206-104	C CAP	0.10
C396	QCZ0206-104	C CAP	0.10

Symbol No.	Part No.	Part Name	Description
C397	QCZ0206-104	C CAP	0.10
C398	QCZ0206-104	C CAP	0.10
C399	QEX41CM-156	E CAP	15 16V
C400	QCZ0206-104	C CAP	0.10
C401	QCZ0206-104	C CAP	0.10
C402	QCZ0206-104	C CAP	0.10
C403	QCZ0206-104	C CAP	0.10
C404	QCZ0206-104	C CAP	0.10
C405	QCZ0206-104	C CAP	0.10
C406	QCZ0206-104	C CAP	0.10
C407	QCZ0206-104	C CAP	0.10
C408	QEX41CM-156	E CAP	15 16V
C409	QCZ0206-104	C CAP	0.10
C410	QCZ0206-104	C CAP	0.10
C411	QCZ0206-104	C CAP	0.10
C412	QEX41CM-156	E CAP	15 16V
C413	QCZ0206-104	C CAP	0.10
C414	QCZ0206-104	C CAP	0.10
C415	QCZ0206-104	C CAP	0.10
C416	QCZ0206-104	C CAP	0.10
C417	QCZ0206-104	C CAP	0.10
C418	QCZ0206-104	C CAP	0.10
C420	QCZ0206-104	C CAP	0.10
C421	QCZ0206-104	C CAP	0.10
C422	QCZ0206-104	C CAP	0.10
C423	QCZ0206-104	C CAP	0.10
C424	QEX41CM-156	E CAP	15 16V
C425	QCZ0206-104	C CAP	0.10
C426	QCZ0206-104	C CAP	0.10
C427	QCZ0206-104	C CAP	0.10
C428	QCZ0206-104	C CAP	0.10
C430	QCZ0206-104	C CAP	0.10
C431	QCZ0206-104	C CAP	0.10
C432	QCZ0206-104	C CAP	0.10
C442	QCZ0206-104	C CAP	0.10
C443	QCZ0206-104	C CAP	0.10
C444	QCZ0206-104	C CAP	0.10
C453	QER41CM-476	E CAP	47 16V
C454	QCT25CH-101	C CAP	100P 50V
L1	SCV0331-101	PEAKING COIL	100μH
L2	SCV0331-680	PEAKING COIL	68μH
L3	SCV0331-560	PEAKING COIL	56μH
L4	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)
L5	SCV0331-101	PEAKING COIL	100μH
L6	SCV0331-150	PEAKING COIL	15μH
L7	SCV0331-220	PEAKING COIL	22μH
L8	SCV0331-150	PEAKING COIL	15μH
L9	SCV0331-220	PEAKING COIL	22μH (U)
	SCV0331-180	PEAKING COIL	18μH (E)
L10	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L11	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L20	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L21	SCV0331-221	PEAKING COIL	220μH (U)
	SCV0331-101	PEAKING COIL	100μH (E)
L22	SCV0331-560	PEAKING COIL	56μH

Symbol No.	Part No.	Part Name	Description
L23	SCV0331-820	PEAKING COIL	82μH (U)
	SCV0331-270	PEAKING COIL	27μH (E)
L24	SCV0331-121	PEAKING COIL	120μH (U)
	SCV0331-680	PEAKING COIL	68μH (E)
L25	SCV0331-221	PEAKING COIL	220μH (U)
	SCV0331-101	PEAKING COIL	100μH (E)
L26	SCV0331-220	PEAKING COIL	22μH
L27	SCV0331-150	PEAKING COIL	15μH
L28	SCV0331-220	PEAKING COIL	22μH
L29	SCV0331-150	PEAKING COIL	15μH
L30	SCV0331-100	PEAKING COIL	10μH
L40	SCV1202-001	COIL	H LOCK
L42	BL02RN2-R62	FERRITE BEAD	H LOCK
L44	BL02RN2-R62	FERRITE BEAD	H LOCK
L45	BL02RN2-R62	FERRITE BEAD	H LOCK
L46	BL02RN2-R62	FERRITE BEAD	H LOCK
L47	BL02RN2-R62	FERRITE BEAD	H LOCK
LC1	EXC-EMT271BT	EMI FILTER	H LOCK
X1	SCV0347-001	CRYSTAL	14.4MHz (U)
	SCV0348-001	CRYSTAL	17.7MHz (E)
S1	SSV1449	ROTARY SWITCH	C POS
S2	QSS1A22-S02	SLIDE SWITCH	AUTO FREEZE
CN1	SCV1704-200	CONNECTOR	200 pin
P1	SCV1149-001	SHORT PLUG	SC TRAP
P2	SCV1149-001	SHORT PLUG	for adjustment

7.14 PS UNIT board of control unit assembly list 14

14□□□□□□□

Symbol No.	Part No.	Part Name	Description
⚠IC1	SCV1943-IC1	I.C.(H)	
IC51	UPC78M12HF	I.C.(M)	NEC
IC52	UPC78M12HF	I.C.(M)	NEC
⚠Q1	2SK786	F.E.T.	NEC
⚠CR1	1J4B41	DIODE	TOSHIBA
CR2	ERB44-08	DIODE	FUJI ELECTRIC
CR52	ERB84-009	DIODE	FUJI ELECTRIC
CR53	ERB84-009	DIODE	FUJI ELECTRIC
CR54	SD24A	DIODE	
CR55	1SS118	DIODE	HITACHI
CR56	1SS118	DIODE	HITACHI
⚠R2	SCV1943-R2	THERMISTOR	
R3	SCV1943-R3	OMFR	
R4	QRD14AJ-2R2	CR	2.2 1/4W
R5	QRD14AJ-2R2	CR	2.2 1/4W
R6	QRD14AJ-8R2	CR	8.2 1/4W
R51	QRD14AJ-221	CR	220 1/4W
R52	QVPB606-502	VR	5K
R53	QRD14AJ-560	CR	56
R54	QRD14AJ-560	CR	56
⚠C1	QFZ9030-224	MM CAP	0.22
⚠C2	SCV1943-C2	MM CAP	
⚠C3	SCV1943-C3	MM CAP	
C4	SCV1943-C4	E CAP	
C6	SCV1943-C6	MYLAR CAP	
C51	SCV1943-C51	E CAP	100 35V
C52	QFZ9011-224	MM CAP	0.22
C53	SCV1943-C53	E CAP	100 35V
C54	QFZ9011-224	MM CAP	0.22
C55	QEMB1AM-338	E CAP	3300 10V
C56	QEMB1AM-338	E CAP	3300 10V
C57	QFH52JK-103	MM CAP	0.01 630V
C58	QFH52JK-103	MM CAP	0.01 630V
C59	QFN31H-104	MYLAR CAP	0.1 50V
C60	QFN42E-102	MYLAR CAP	1000P 250V
⚠T1	SCV1943-T1	TRANS	
L1	SCV1943-L1	LINE FILTER	
L51	SCV1943-L51	COIL	
⚠F1	QMF51J2-1R0	FUSE	250V 1A,T1A
⚠CP1	SCV1943-CP1	Connector	3 pin
CP51	SCV1943-CP51	Connector	6 pin

7.15 PS UNIT board of main unit assembly list 15

15□□□□□□□

Symbol No.	Part No.	Part Name	Description
⚠H1	SCV1986-H1	I.C.(H)	
⚠M1	UPC78M15H	I.C.(M)	NEC
M11	AN1431T	I.C.(M)	MATSUSHITA
	or HA17431P	I.C.(M)	HITACHI
M21	AN1431T	I.C.(M)	MATSUSHITA
	or HA17431P	I.C.(M)	HITACHI
M60	UPC2412HF	I.C.(M)	NEC
⚠PC1	PC111S	I.C.(M)	SHARP
	or PS2652	I.C.(M)	NEC
⚠PC2	PC111S	I.C.(M)	SHARP
	or PS2652	I.C.(M)	NEC
Q20	2SA965Y	TRANSISTOR	TOSHIBA
⚠Q40	2SK872	F.E.T.	NEC
⚠D1	1SS81	DIODE	HITACHI
D11	D10SC6M	DIODE	SHINDENGEN
D12	D10SC6M	DIODE	SHINDENGEN
D20	S20LCA20	DIODE	SHINDENGEN
D21	EU2A	DIODE	SANKEN
D22	1SS81	DIODE	HITACHI
D23	1SS81	DIODE	HITACHI
D24	1SS81	DIODE	HITACHI
D25	1SS81	DIODE	HITACHI
D26	1SS81	DIODE	HITACHI
⚠D44	1SS81	DIODE	HITACHI
⚠D45	V11M	DIODE	HITACHI
	or ERB37-10	DIODE	FUJI ELECTRIC
⚠D46	V11M	DIODE	HITACHI
	or ERB37-10	DIODE	FUJI ELECTRIC
D60	D5LCA20	DIODE	SHINDENGEN
DZ10	HZ5C2	ZENER DIODE	HITACHI
⚠DZ51	HZ2B-2	ZENER DIODE	HITACHI
⚠TH40	SCV1986-TH40	TRIAC	
⚠TH41	SCV1986-TH41	TRIAC	
⚠RF40	SCV1986-RF40	DIODE	
⚠R2	QRV141F-2R20	MFR	2.2 1/4W
R3	QRV141F-3900	MFR	390 1/4W
R10	QRV141F-3300	MFR	330 1/4W
R13	QRG029J-100	OMFR	10 2W
R14	QRG019J-330	OMFR	33 2W
R20	QRV141F-2701	MFR	2.7K 1/4W
R21	QRV141F-4700	MFR	470 1/4W
R23	QRG029J-220	OMFR	22 2W
R25	QRG016J-221	OMFR	220 1W
R26	QRV141F-4700	MFR	470 1/4W
R27	QRV141F-1201	MFR	1.2K 1/4W
R28	SCV1986-R28	OMFR	270 2W
R29	QRV141F-2700	MFR	270 1/4W

Symbol No.	Part No.	Part Name	Description
R30	QRV141F-1001	MFR	1K 1/4W
R32	QRV141F-4700	MFR	470 1/4W
⚠R40	QRV141F-10R0	MFR	10 1/4W
⚠R41	QRV141F-1002	MFR	10K 1/4W
⚠R43	SCV1986-R43	FR	15 130°C
⚠R44	SCV1986-R44	CEMENT RESISTOR	39 2W
⚠R45	QRV141F-5600	MFR	560 1/4W
⚠R46	QRH019J-4R7	FR	4.7 1W
⚠R50	QRV141F-2703	MFR	270K 1/4W
⚠R51	QRV141F-2703	MFR	270K 1/4W
⚠R52	QRV141F-2703	MFR	270K 1/4W
⚠R53	QRV141F-2703	MFR	270K 1/4W
⚠R54	QRG029J-823	OMFR	82K 2W
⚠R55	QRG029J-823	OMFR	82K 2W
R60	QRG019J-561	OMFR	560 1W
R63	QRG029J-220	OMFR	22 2W
⚠R80	QRG029J-220	OMFR	22 2W
R02	QRV141F-4R70	MFR	4.7 1/4W
R03	QRV141F-4700	MFR	470 1/4W
R04	QRV141F-2700	MFR	270 1/4W
R05	QRV141F-1200	MFR	120 1/4W
R07	QRV141F-15R0	MFR	15 1/4W
⚠RV2	QVZ3507-501	VR	500
⚠RV3	QVZ3507-501	VR	500
RV4	QVZ3507-201	VR	200
⚠RV01	QVZ3507-501	VR	500 +5VADJ.
⚠C1	QETA1HM-475	E CAP	4.7 50V
⚠C2	QETA1VM-106	E CAP	10 35V
⚠C3	QETA1HM-475	E CAP	4.7 50V
⚠C4	QETA1JM-226	E CAP	22 6.3V
⚠C6	QFZ9013-334	MM CAP	0.33 6.3V
⚠C8	QFZ9013-474	MM CAP	0.47 6.3V
C11	SCV1986-C11	E CAP	1800 25V
C12	SCV1986-C11	E CAP	1800 25V
C13	SCV1986-C13	MM CAP	3300P
C14	SCV1986-C14	MM CAP	2200P
C16	QFN41HJ-333	MYLAR CAP	0.033 50V
C20	QETA1HM-105	E CAP	1 50V
C21	SCV1986-C21	E CAP	680 25V
C22	SCV1986-C21	E CAP	680 25V
C23	SCV1986-C23	MM CAP	1500P IKV
C24	QFN41HJ-683	MYLAR CAP	0.068 50V
C27	QFN41HJ-333	MYLAR CAP	0.033 50V
C29	QETA1HM-335	E CAP	3.3 50V
⚠C40	SCV1986-C40	MM CAP	2200P AC125V
⚠C41	SCV1986-C40	MM CAP	2200P AC125V
⚠C42	QFZ9017-474	F CAP	0.47
⚠C43	QFZ9017-104	F CAP	0.1
⚠C44	QETA1HM-107	E CAP	100 50V
⚠C45	QFN41HJ-473	MYLAR CAP	0.047 50V
⚠C47	SCV1986-C40	MM CAP	2200P AC125V
⚠C48	SCV1986-C40	MM CAP	2200P AC125V
⚠C50	SCV1986-C50	E CAP	330 250V
⚠C51	SCV1986-C50	E CAP	330 250V
C60	SCV1986-C60	E CAP	390 35V
C61	SCV1986-C60	E CAP	390 35V

Symbol No.	Part No.	Part Name	Description
C63	SCV1986-C63	MM CAP	1000P 1KV
C64	QFN41HJ-333	MYLAR CAP	0.033 50V
⚠C80	SCV1986-C80	MM CAP	220P 2KV
⚠C90	SCV1986-C90	MM CAP	0.022
⚠C91	SCV1986-C90	MM CAP	0.022
⚠C92	SCV1986-C90	MM CAP	0.022
⚠C93	SCV1986-C90	MM CAP	0.022
⚠C94	SCV1986-C90	MM CAP	0.022
C01	QETA1HM-105	E CAP	1 50V
⚠C02	QETA1HM-225	E CAP	2.2 50V
C03	QFN41HJ-103	MYLAR CAP	0.01 50V
L11	SCV1986-L11	CHOKE COIL	
L21	SCV1986-L21	CHOKE COIL	
⚠L42	SCV1986-L42	CHOKE COIL	
⚠L43	SCV1986-L43	CHOKE COIL	
L61	SCV1986-L61	CHOKE COIL	
L70	SCV1986-L70	FERRITE BEADS	
ML21	SCV1986-ML21	COIL	Mag.Amp.
⚠T40	SCV1986-T40	POWER TRANS	
CT11	SCV1986-CT11	CURRENT TRANS	
⚠CT40	SCV1986-CT11	CURRENT TRANS	
⚠F40	SCV1986-F40U	FUSE	250V 6.3A (U)
	SCV1986-F40E	FUSE	250V T6.3A (E)
⚠CN1	SM3491-004	CONNECTOR	4 pin,100V/200V
⚠CN3	SCV1986-CN3	CONNECTOR	4 pin
⚠CN4	SCV1986-CN4	CONNECTOR	7 pin
⚠CN5	SCV1986-CN5	CONNECTOR	5 pin

7.10-P Y/C SEPA board assembly list 1 0
for E version 1 0 ☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC21	AN608P	I.C.(M)	MATSUSHITA
IC22	CXL1009P	I.C.(M)	SONY
IC23	CXL1009P	I.C.(M)	SONY
IC24	AN608P	I.C.(M)	MATSUSHITA
IC25	AN608P	I.C.(M)	MATSUSHITA
IC31	AN608P	I.C.(M)	MATSUSHITA
IC32	CXL1009P	I.C.(M)	SONY
IC33	CXL1009P	I.C.(M)	SONY
IC34	AN608P	I.C.(M)	MATSUSHITA
IC35	AN608P	I.C.(M)	MATSUSHITA
IC45	TC4053BP	I.C.(M)	TOSHIBA
IC46	TC4053BP	I.C.(M)	TOSHIBA
IC49	NJM7809FA	I.C.(M)	JRC
IC50	TA78L005AP	I.C.(M)	TOSHIBA
IC51	NJM7809FA	I.C.(M)	JRC
IC52	TA78L005AP	I.C.(M)	TOSHIBA
IC53	TC40H004P	I.C.(M)	TOSHIBA
IC54	TA7347P	I.C.(M)	TOSHIBA
IC55	TA7347P	I.C.(M)	TOSHIBA
IC56	TA7347P	I.C.(M)	TOSHIBA
IC57	TA7347P	I.C.(M)	TOSHIBA
IC58	TC4051BP	I.C.(M)	TOSHIBA
IC59	TC4051BP	I.C.(M)	TOSHIBA
Q201	2SC829(C)	TRANSISTOR	MATSUSHITA
Q202	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q203	2SC829(C)	TRANSISTOR	MATSUSHITA
Q204	2SC829(C)	TRANSISTOR	MATSUSHITA
Q205	2SC829(C)	TRANSISTOR	MATSUSHITA
Q206	2SC829(C)	TRANSISTOR	MATSUSHITA
Q207	2SC829(C)	TRANSISTOR	MATSUSHITA
Q208	2SC829(C)	TRANSISTOR	MATSUSHITA
Q209	2SC829(C)	TRANSISTOR	MATSUSHITA
Q210	2SC829(C)	TRANSISTOR	MATSUSHITA
Q211	2SC829(C)	TRANSISTOR	MATSUSHITA
Q212	2SC829(C)	TRANSISTOR	MATSUSHITA
Q213	2SC829(C)	TRANSISTOR	MATSUSHITA
Q214	2SC829(C)	TRANSISTOR	MATSUSHITA
Q215	2SC829(C)	TRANSISTOR	MATSUSHITA
Q216	2SC829(C)	TRANSISTOR	MATSUSHITA
Q217	2SC829(C)	TRANSISTOR	MATSUSHITA
Q218	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q219	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q220	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q221	2SC829(C)	TRANSISTOR	MATSUSHITA
Q222	2SC829(C)	TRANSISTOR	MATSUSHITA
Q223	2SC829(C)	TRANSISTOR	MATSUSHITA
Q224	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q225	2SC829(C)	TRANSISTOR	MATSUSHITA
Q226	2SC829(C)	TRANSISTOR	MATSUSHITA
Q227	2SC829(C)	TRANSISTOR	MATSUSHITA
Q228	2SC829(C)	TRANSISTOR	MATSUSHITA
Q229	2SC829(C)	TRANSISTOR	MATSUSHITA
Q230	2SC829(C)	TRANSISTOR	MATSUSHITA
Q231	2SC829(C)	TRANSISTOR	MATSUSHITA
Q301	2SC829(C)	TRANSISTOR	MATSUSHITA
Q302	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q303	2SC829(C)	TRANSISTOR	MATSUSHITA
Q304	2SC829(C)	TRANSISTOR	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
Q305	2SC829(C)	TRANSISTOR	MATSUSHITA
Q306	2SC829(C)	TRANSISTOR	MATSUSHITA
Q307	2SC829(C)	TRANSISTOR	MATSUSHITA
Q308	2SC829(C)	TRANSISTOR	MATSUSHITA
Q309	2SC829(C)	TRANSISTOR	MATSUSHITA
Q310	2SC829(C)	TRANSISTOR	MATSUSHITA
Q311	2SC829(C)	TRANSISTOR	MATSUSHITA
Q312	2SC829(C)	TRANSISTOR	MATSUSHITA
Q313	2SC829(C)	TRANSISTOR	MATSUSHITA
Q314	2SC829(C)	TRANSISTOR	MATSUSHITA
Q315	2SC829(C)	TRANSISTOR	MATSUSHITA
Q316	2SC829(C)	TRANSISTOR	MATSUSHITA
Q317	2SC829(C)	TRANSISTOR	MATSUSHITA
Q318	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q319	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q320	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q321	2SC829(C)	TRANSISTOR	MATSUSHITA
Q322	2SC829(C)	TRANSISTOR	MATSUSHITA
Q323	2SC829(C)	TRANSISTOR	MATSUSHITA
Q324	2SA838(C)	SI.TRANSISTOR	MATSUSHITA
Q325	2SC829(C)	TRANSISTOR	MATSUSHITA
Q326	2SC829(C)	TRANSISTOR	MATSUSHITA
Q327	2SC829(C)	TRANSISTOR	MATSUSHITA
Q328	2SC829(C)	TRANSISTOR	MATSUSHITA
Q329	2SC829(C)	TRANSISTOR	MATSUSHITA
Q330	2SC829(C)	TRANSISTOR	MATSUSHITA
Q331	2SC829(C)	TRANSISTOR	MATSUSHITA
Q401	2SC829(C)	TRANSISTOR	MATSUSHITA
Q402	2SC829(C)	TRANSISTOR	MATSUSHITA
Q405	2SC829(C)	TRANSISTOR	MATSUSHITA
Q406	2SC829(C)	TRANSISTOR	MATSUSHITA
Q407	2SC829(C)	TRANSISTOR	MATSUSHITA
Q408	2SC829(C)	TRANSISTOR	MATSUSHITA
Q500	2SC829(C)	TRANSISTOR	MATSUSHITA
Q501	2SC829(C)	TRANSISTOR	MATSUSHITA
Q502	2SC829(C)	TRANSISTOR	MATSUSHITA
Q503	2SC829(C)	TRANSISTOR	MATSUSHITA
R201	QRD161J-393	CR	39K 1/6W
R202	QRD161J-473	CR	47K 1/6W
R203	QRD161J-102	CR	1.0K 1/6W
R204	QRD161J-102	CR	1.0K 1/6W
R205	QRD161J-102	CR	1.0K 1/6W
R206	QRD161J-333	CR	33K 1/6W
R207	QRD161J-333	CR	33K 1/6W
R208	QRD161J-122	CR	1.2K 1/6W
R209	QRD161J-472	CR	4.7K 1/6W
R210	QRD161J-181	CR	180 1/6W
R211	QRD161J-102	CR	1.0K 1/6W
R212	QRD161J-181	CR	180 1/6W
R213	QRD161J-102	CR	1.0K 1/6W
R214	QRD161J-104	CR	100K 1/6W
R215	QRD161J-224	CR	220K 1/6W
R216	QRD161J-221	CR	220 1/6W
R217	QRD161J-102	CR	1.0K 1/6W
R218	QRD161J-121	CR	120 1/6W
R219	QRD161J-222	CR	2.2K 1/6W
R220	QRD161J-104	CR	100K 1/6W

(Y/C SEPA, E version)

Symbol No.	Part No.	Part Name	Description
R221	QRD161J-224	CR	220K 1/6W
R222	QRD161J-221	CR	220 1/6W
R223	QRD161J-102	CR	1.0K 1/6W
R224	QRD161J-121	CR	120 1/6W
R225	QRD161J-222	CR	2.2K 1/6W
R226	QRD161J-102	CR	1.0K 1/6W
R227	QRD161J-102	CR	1.0K 1/6W
R228	QRD161J-473	CR	47K 1/6W
R229	QRD161J-473	CR	47K 1/6W
R230	QRD161J-681	CR	680 1/6W
R231	QRD161J-681	CR	680 1/6W
R232	QRD161J-181	CR	180 1/6W
R233	QRD161J-102	CR	1.0K 1/6W
R234	QRD161J-473	CR	47K 1/6W
R235	QRD161J-473	CR	47K 1/6W
R236	QRD161J-223	CR	22K 1/6W
R237	QRD161J-222	CR	2.2K 1/6W
R238	QRD161J-181	CR	180 1/6W
R239	QRD161J-223	CR	22K 1/6W
R240	QRD161J-223	CR	22K 1/6W
R241	QRD161J-181	CR	180 1/6W
R242	QRD161J-222	CR	2.2K 1/6W
R243	QRD161J-181	CR	180 1/6W
R244	QRD161J-223	CR	22K 1/6W
R245	QRD161J-223	CR	22K 1/6W
R246	QRD161J-181	CR	180 1/6W
R247	QRD161J-222	CR	2.2K 1/6W
R248	QRD161J-223	CR	22K 1/6W
R249	QRD161J-221	CR	220 1/6W
R250	QRD161J-221	CR	220 1/6W
R251	QRD161J-221	CR	220 1/6W
R252	QRD161J-222	CR	2.2K 1/6W
R253	QRD161J-223	CR	22K 1/6W
R254	QRD161J-153	CR	15K 1/6W
R256	QRD161J-102	CR	1.0K 1/6W
R257	QRD161J-102	CR	1.0K 1/6W
R258	QRD161J-102	CR	1.0K 1/6W
R259	QRD161J-681	CR	680 1/6W
R260	QRD161J-222	CR	2.2K 1/6W
R261	QRD161J-102	CR	1.0K 1/6W
R262	QRD161J-102	CR	1.0K 1/6W
R263	QRD161J-221	CR	220 1/6W
R264	QRD161J-222	CR	2.2K 1/6W
R265	QRD161J-221	CR	220 1/6W
R266	QRD161J-222	CR	2.2K 1/6W
R267	QRD161J-471	CR	470 1/6W
R268	QRD161J-471	CR	470 1/6W
R269	QRD161J-221	CR	220 1/6W
R270	QRD161J-102	CR	1.0K 1/6W
R271	QRD161J-471	CR	470 1/6W
R272	QRD161J-471	CR	470 1/6W
R273	QRD161J-473	CR	47K 1/6W
R274	QRD161J-473	CR	47K 1/6W
R275	QRD161J-102	CR	1.0K 1/6W
R276	QRD161J-102	CR	1.0K 1/6W
R277	QRD161J-471	CR	470 1/6W
R278	QRD161J-151	CR	150 1/6W
R279	QRD161J-471	CR	470 1/6W
R280	QRD161J-102	CR	1.0K 1/6W
R281	QRD161J-473	CR	47K 1/6W

Symbol No.	Part No.	Part Name	Description
R282	QRD161J-273	CR	27K 1/6W
R283	QRD161J-102	CR	1.0K 1/6W
R284	QRD161J-472	CR	4.7K 1/6W
R285	QRD161J-332	CR	3.3K 1/6W
R286	QRD161J-473	CR	47K 1/6W
R287	QRD161J-473	CR	47K 1/6W
R288	QRD161J-102	CR	1.0K 1/6W
R289	QRD161J-102	CR	1.0K 1/6W
R290	QRD161J-332	CR	3.3K 1/6W
R291	QRD161J-332	CR	3.3K 1/6W
R301	QRD161J-393	CR	39K 1/6W
R302	QRD161J-473	CR	47K 1/6W
R303	QRD161J-102	CR	1.0K 1/6W
R304	QRD161J-102	CR	1.0K 1/6W
R305	QRD161J-102	CR	1.0K 1/6W
R306	QRD161J-333	CR	33K 1/6W
R307	QRD161J-333	CR	33K 1/6W
R308	QRD161J-122	CR	1.2K 1/6W
R309	QRD161J-472	CR	4.7K 1/6W
R310	QRD161J-181	CR	180 1/6W
R311	QRD161J-102	CR	1.0K 1/6W
R312	QRD161J-181	CR	180 1/6W
R313	QRD161J-102	CR	1.0K 1/6W
R314	QRD161J-104	CR	100K 1/6W
R315	QRD161J-224	CR	220K 1/6W
R316	QRD161J-221	CR	220 1/6W
R317	QRD161J-102	CR	1.0K 1/6W
R318	QRD161J-121	CR	120 1/6W
R319	QRD161J-222	CR	2.2K 1/6W
R320	QRD161J-104	CR	100K 1/6W
R321	QRD161J-224	CR	220K 1/6W
R322	QRD161J-221	CR	220 1/6W
R323	QRD161J-102	CR	1.0K 1/6W
R324	QRD161J-121	CR	120 1/6W
R325	QRD161J-222	CR	2.2K 1/6W
R326	QRD161J-102	CR	1.0K 1/6W
R327	QRD161J-102	CR	1.0K 1/6W
R328	QRD161J-473	CR	47K 1/6W
R329	QRD161J-473	CR	47K 1/6W
R330	QRD161J-681	CR	680 1/6W
R331	QRD161J-681	CR	680 1/6W
R332	QRD161J-181	CR	180 1/6W
R333	QRD161J-102	CR	1.0K 1/6W
R334	QRD161J-473	CR	47K 1/6W
R335	QRD161J-473	CR	47K 1/6W
R336	QRD161J-223	CR	22K 1/6W
R337	QRD161J-222	CR	2.2K 1/6W
R338	QRD161J-181	CR	180 1/6W
R339	QRD161J-223	CR	22K 1/6W
R340	QRD161J-223	CR	22K 1/6W
R341	QRD161J-181	CR	180 1/6W
R342	QRD161J-222	CR	2.2K 1/6W
R343	QRD161J-181	CR	180 1/6W
R344	QRD161J-223	CR	22K 1/6W
R345	QRD161J-223	CR	22K 1/6W
R346	QRD161J-181	CR	180 1/6W
R347	QRD161J-222	CR	2.2K 1/6W
R348	QRD161J-223	CR	22K 1/6W
R349	QRD161J-221	CR	220 1/6W
R350	QRD161J-221	CR	220 1/6W

Symbol No.	Part No.	Part Name	Description
R351	QRD161J-221	CR	220 1/6W
R352	QRD161J-222	CR	2.2K 1/6W
R353	QRD161J-223	CR	22K 1/6W
R354	QRD161J-153	CR	15K 1/6W
R356	QRD161J-102	CR	1.0K 1/6W
R357	QRD161J-102	CR	1.0K 1/6W
R358	QRD161J-102	CR	1.0K 1/6W
R359	QRD161J-681	CR	680 1/6W
R360	QRD161J-222	CR	2.2K 1/6W
R361	QRD161J-102	CR	1.0K 1/6W
R362	QRD161J-102	CR	1.0K 1/6W
R363	QRD161J-221	CR	220 1/6W
R364	QRD161J-222	CR	2.2K 1/6W
R365	QRD161J-221	CR	220 1/6W
R366	QRD161J-222	CR	2.2K 1/6W
R367	QRD161J-471	CR	470 1/6W
R368	QRD161J-471	CR	470 1/6W
R369	QRD161J-221	CR	220 1/6W
R370	QRD161J-102	CR	1.0K 1/6W
R371	QRD161J-471	CR	470 1/6W
R372	QRD161J-471	CR	470 1/6W
R373	QRD161J-473	CR	47K 1/6W
R374	QRD161J-473	CR	47K 1/6W
R375	QRD161J-102	CR	1.0K 1/6W
R376	QRD161J-102	CR	1.0K 1/6W
R377	QRD161J-471	CR	470 1/6W
R378	QRD161J-151	CR	150 1/6W
R379	QRD161J-471	CR	470 1/6W
R380	QRD161J-102	CR	1.0K 1/6W
R381	QRD161J-473	CR	47K 1/6W
R382	QRD161J-273	CR	27K 1/6W
R383	QRD161J-102	CR	1.0K 1/6W
R384	QRD161J-472	CR	4.7K 1/6W
R385	QRD161J-332	CR	3.3K 1/6W
R386	QRD161J-473	CR	47K 1/6W
R387	QRD161J-473	CR	47K 1/6W
R388	QRD161J-102	CR	1.0K 1/6W
R389	QRD161J-102	CR	1.0K 1/6W
R390	QRD161J-332	CR	3.3K 1/6W
R391	QRD161J-332	CR	3.3K 1/6W
R401	QRD161J-221	CR	220 1/6W
R402	QRD161J-472	CR	4.7K 1/6W
R405	QRD161J-221	CR	220 1/6W
R406	QRD161J-472	CR	4.7K 1/6W
R417	QRD161J-221	CR	220 1/6W
R418	QRD161J-472	CR	4.7K 1/6W
R419	QRD161J-273	CR	27K 1/6W
R420	QRD161J-223	CR	22K 1/6W
R421	QRD161J-221	CR	220 1/6W
R422	QRD161J-472	CR	4.7K 1/6W
R423	QRD161J-273	CR	27K 1/6W
R424	QRD161J-223	CR	22K 1/6W
R425	QRD161J-221	CR	220 1/6W
R426	QRD161J-472	CR	4.7K 1/6W
R429	QRD161J-221	CR	220 1/6W
R430	QRD161J-472	CR	4.7K 1/6W
R437	QRD161J-0R0	CR	0 1/6W
R438	QRD161J-471	CR	470 1/6W
R439	QRD161J-0R0	CR	0 1/6W
R440	QRD161J-471	CR	470 1/6W

Symbol No.	Part No.	Part Name	Description
R441	QRD161J-103	CR	10K 1/6W
R442	QRD161J-103	CR	10K 1/6W
R443	QRD161J-103	CR	10K 1/6W
R444	QRD161J-103	CR	10K 1/6W
R445	QRD161J-103	CR	10K 1/6W
R446	QRD161J-103	CR	10K 1/6W
R447	QRD161J-103	CR	10K 1/6W
R448	QRD161J-103	CR	10K 1/6W
R449	QRD161J-103	CR	10K 1/6W
R450	QRD161J-103	CR	10K 1/6W
R451	QRD161J-105	CR	1.0M 1/6W
R452	QRD161J-0R0	CR	0Ω 1/6W
R453	QRD161J-0R0	CR	0Ω 1/6W
R460	QRD161J-103	CR	10K 1/6W
R461	QRD161J-103	CR	10K 1/6W
R500	QRD161J-821	CR	820 1/6W
R501	QRD161J-273	CR	27K 1/6W
R502	QRD161J-273	CR	27K 1/6W
R503	QRD161J-821	CR	820 1/6W
R504	QRD161J-472	CR	4.7K 1/6W
R600	QRD161J-821	CR	820 1/6W
R601	QRD161J-273	CR	27K 1/6W
R602	QRD161J-273	CR	27K 1/6W
R603	QRD161J-821	CR	820 1/6W
R604	QRD161J-472	CR	4.7K 1/6W
VR201	QVPB613-103	TRIM.RESISTOR	10K DC 1
VR202	QVPB613-502	TRIM.RESISTOR	5K BIAS 1
VR203	QVPB613-102	TRIM.RESISTOR	1K 1H LEV 1
VR204	QVPB613-103	TRIM.RESISTOR	10K DC 2
VR205	QVPB613-502	TRIM.RESISTOR	5K BIAS 2
VR206	QVPB613-102	TRIM.RESISTOR	1K 2H LEV 1
VR207	QVPB613-102	TRIM.RESISTOR	1K 2H PHASE 1
VR208	QVPB613-102	TRIM.RESISTOR	1K COMB BAL 1
VR209	QVPB613-102	TRIM.RESISTOR	1K COMB DELAY 1
VR210	QVPB613-102	TRIM.RESISTOR	1K Y LEV 1
VR211	QVPB613-501	TRIM.RESISTOR	500 0H PHASE 1
VR212	QVPB613-501	TRIM.RESISTOR	500 C LEV1
VR301	QVPB613-103	TRIM.RESISTOR	10K DC 3
VR302	QVPB613-502	TRIM.RESISTOR	5K BIAS 3
VR303	QVPB613-102	TRIM.RESISTOR	1K 1H LEV 2
VR304	QVPB613-103	TRIM.RESISTOR	10K DC 4
VR305	QVPB613-502	TRIM.RESISTOR	5K BIAS 4
VR306	QVPB613-102	TRIM.RESISTOR	1K 2H LEV 2
VR307	QVPB613-102	TRIM.RESISTOR	1K 2H PHASE 2
VR308	QVPB613-102	TRIM.RESISTOR	1K COMB BAL 2
VR309	QVPB613-102	TRIM.RESISTOR	1K COMB DELAY 2
VR310	QVPB613-102	TRIM.RESISTOR	1K Y LEV 2
VR311	QVPB613-501	TRIM.RESISTOR	500 0H PHASE 2
VR312	QVPB613-501	TRIM.RESISTOR	500 C LEV 2
VR500	QVPB613-501	TRIM.RESISTOR	500 C GAIN 1
VR501	QVPB613-501	TRIM.RESISTOR	500 C GAIN 2
C201	QEPA0JM-476	NP CAP	47 6.3V
C202	QCT25CH-560	C CAP	56P 50V
C203	QCT25CH-560	C CAP	56P 50V
C204	QCT25UJ-180	C CAP	18P 50V
C205	QER41CM-476	E CAP	47 16V
C206	QFN41HJ-223	MY CAP	0.022 50V

Y/C SEPA, E version)

Symbol No.	Part No.	Part Name	Description	
C207	QFN41HJ-223	MY CAP	0.022	50V
C208	QEPA0JM-476	NP CAP	47	6.3V
C209	QFN41HJ-224	MY CAP	0.22	50V
C210	QER41CM-476	E CAP	47	16V
C211	QEJ41CM-335	T CAP	3.3	16V
C212	QEJ41CM-335	T CAP	3.3	16V
C213	QEJ41CM-335	T CAP	3.3	16V
C214	QFN41HJ-473	MY CAP	0.047	50V
C215	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C216	QER41CM-476	E CAP	47	16V
C217	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C218	QER41CM-476	E CAP	47	16V
C219	QCT25CH-330	C CAP	33P	50V
C220	QER41CM-476	E CAP	47	16V
C221	QCT25CH-120	C CAP	12P	50V
C222	QEPA0JM-476	NP CAP	47	6.3V
C223	QFN41HJ-224	MY CAP	0.22	50V
C224	QER41CM-476	E CAP	47	16V
C225	QEJ41CM-335	T CAP	3.3	16V
C226	QEJ41CM-335	T CAP	3.3	16V
C227	QEJ41CM-335	T CAP	3.3	16V
C228	QFN41HJ-473	MY CAP	0.047	50V
C229	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C230	QER41CM-476	E CAP	47	16V
C231	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C232	QER41CM-476	E CAP	47	16V
C233	QCT25CH-330	C CAP	33P	50V
C234	QER41CM-476	E CAP	47	16V
C235	QCT25CH-120	C CAP	12P	50V
C236	QER41CM-476	E CAP	47	16V
C237	QCT25CH-390	C CAP	39P	50V
C238	QCT25CH-270	C CAP	27P	50V
C239	QFN41HJ-223	MY CAP	0.022	50V
C240	QFN41HJ-223	MY CAP	0.022	50V
C241	QER41CM-476	E CAP	47	16V
C242	QER41CM-476	E CAP	47	16V
C243	QEPA1CM-106	NP CAP	10	16V
C244	QEPA1CM-106	NP CAP	10	16V
C245	QEPA1CM-106	NP CAP	10	16V
C246	QEPA1CM-106	NP CAP	10	16V
C247	QER41CM-476	E CAP	47	16V
C248	QFN41HJ-223	MY CAP	0.022	50V
C249	QEPA0JM-476	NP CAP	47	6.3V
C250	QCT25CH-220	C CAP	22P	50V
C251	QCT25CH-220	C CAP	22P	50V
C252	QCT25UJ-100	C CAP	10P	50V
C253	QCS11HJ-150	C CAP	15P	50V
C254	QCT25UJ-330	C CAP	33P	50V
C255	QEPA0JM-476	NP CAP	47	6.3V
C256	QCT25CH-120	C CAP	12P	50V
C257	QCT25CH-330	C CAP	33P	50V
C258	QFN41HJ-223	MY CAP	0.022	50V
C259	QER41CM-476	E CAP	47	16V
C260	QCT25UJ-180	C CAP	18P	50V
C261	QER41CM-476	E CAP	47	16V
C262	QER41CM-476	E CAP	47	16V
C263	QER41CM-476	E CAP	47	16V
C264	QER41CM-476	E CAP	47	16V
C265	QER41CM-476	E CAP	47	16V

Symbol No.	Part No.	Part Name	Description	
C266	QER41CM-476	E CAP	47	16V
C267	QFN41HJ-223	MY CAP	0.022	50V
C268	QCT25CH-470	C CAP	47P	50V
C269	QFN41HJ-223	MY CAP	0.022	50V
C270	QFN41HJ-223	MY CAP	0.022	50V
C271	QCT25CH-180	C CAP	18P	50V
C301	QEPA0JM-476	NP CAP	47	6.3V
C302	QCT25CH-560	C CAP	56P	50V
C303	QCT25CH-560	C CAP	56P	50V
C304	QCT25UJ-180	C CAP	18P	50V
C305	QER41CM-476	E CAP	47	16V
C306	QFN41HJ-223	MY CAP	0.022	50V
C307	QFN41HJ-223	MY CAP	0.022	50V
C308	QEPA0JM-476	NP CAP	47	6.3V
C309	QFN41HJ-224	MY CAP	0.22	50V
C310	QER41CM-476	E CAP	47	16V
C311	QEJ41CM-335	T CAP	3.3	16V
C312	QEJ41CM-335	T CAP	3.3	16V
C313	QEJ41CM-335	T CAP	3.3	16V
C314	QFN41HJ-473	MY CAP	0.047	50V
C315	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C316	QER41CM-476	E CAP	47	16V
C317	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C318	QER41CM-476	E CAP	47	16V
C319	QCT25CH-330	C CAP	33P	50V
C320	QER41CM-476	E CAP	47	16V
C321	QCT25CH-120	C CAP	12P	50V
C322	QEPA0JM-476	NP CAP	47	6.3V
C323	QFN41HJ-224	MY CAP	0.22	50V
C324	QER41CM-476	E CAP	47	16V
C325	QEJ41CM-335	T CAP	3.3	16V
C326	QEJ41CM-335	T CAP	3.3	16V
C327	QEJ41CM-335	T CAP	3.3	16V
C328	QFN41HJ-473	MY CAP	0.047	50V
C329	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C330	QER41CM-476	E CAP	47	16V
C331	QFN41HJ-104	MYLAR CAPACITOR	0.10	50V
C332	QER41CM-476	E CAP	47	16V
C333	QCT25CH-330	C CAP	33P	50V
C334	QER41CM-476	E CAP	47	16V
C335	QCT25CH-120	C CAP	12P	50V
C336	QER41CM-476	E CAP	47	16V
C337	QCT25CH-390	C CAP	39P	50V
C338	QCT25CH-270	C CAP	27P	50V
C339	QFN41HJ-223	MY CAP	0.022	50V
C340	QFN41HJ-223	MY CAP	0.022	50V
C341	QER41CM-476	E CAP	47	16V
C342	QER41CM-476	E CAP	47	16V
C343	QEPA1CM-106	NP CAP	10	16V
C344	QEPA1CM-106	NP CAP	10	16V
C345	QEPA1CM-106	NP CAP	10	16V
C346	QEPA1CM-106	NP CAP	10	16V
C347	QER41CM-476	E CAP	47	16V
C348	QFN41HJ-223	MY CAP	0.022	50V
C349	QEPA0JM-476	NP CAP	47	6.3V
C350	QCT25CH-220	C CAP	22P	50V
C351	QCT25CH-220	C CAP	22P	50V
C352	QCT25UJ-100	C CAP	10P	50V
C353	QCS11HJ-150	C CAP	15P	50V

Symbol No.	Part No.	Part Name	Description
C354	QCT25UJ–330	C CAP	33P 50V
C355	QEPA0JM–476	NP CAP	47 6.3V
C356	QCT25CH–120	C CAP	12P 50V
C357	QCT25CH–330	C CAP	33P 50V
C358	QFN41HJ–223	MY CAP	0.022 50V
C359	QER41CM–476	E CAP	47 16V
C360	QCT25UJ–180	C CAP	18P 50V
C361	QER41CM–476	E CAP	47 16V
C362	QER41CM–476	E CAP	47 16V
C363	QER41CM–476	E CAP	47 16V
C364	QER41CM–476	E CAP	47 16V
C365	QER41CM–476	E CAP	47 16V
C366	QER41CM–476	E CAP	47 16V
C367	QFN41HJ–223	MY CAP	0.022 50V
C368	QCT25CH–470	C CAP	47P 50V
C369	QFN41HJ–223	MY CAP	0.022 50V
C370	QFN41HJ–223	MY CAP	0.022 50V
C371	QCT25CH–180	C CAP	18P 50V
C405	QER41CM–106	E CAP	10 16V
C406	QER41CM–106	E CAP	10 16V
C409	QEPA1CM–106	NP CAP	10 16V
C410	QEPA1CM–106	NP CAP	10 16V
C411	QEPA1CM–106	NP CAP	10 16V
C412	QEPA1CM–106	NP CAP	10 16V
C413	QEPA1CM–106	NP CAP	10 16V
C414	QEPA1CM–106	NP CAP	10 16V
C415	QEPA1CM–106	NP CAP	10 16V
C416	QEPA1CM–106	NP CAP	10 16V
C417	QCT25CH–390	C CAP	39P 50V
C418	QCT25CH–390	C CAP	39P 50V
C419	QCS11HJ–121	C CAP	120P 50V
C420	QER41CM–476	E CAP	47 16V
C421	QCF11HP–103	CER.CAPACITOR	0.010 50V
C422	QER41CM–476	E CAP	47 16V
C423	QCF11HP–103	CER.CAPACITOR	0.010 50V
C424	QER41CM–476	E CAP	47 16V
C425	QER41CM–476	E CAP	47 16V
C426	QER41CM–476	E CAP	47 16V
C427	QCF11HP–103	CER.CAPACITOR	0.010 50V
C428	QER41CM–476	E CAP	47 16V
C429	QCF11HP–103	CER.CAPACITOR	0.010 50V
C430	QER41CM–476	E CAP	47 16V
C431	QER41CM–476	E CAP	47 16V
C432	QCF11HP–103	CER.CAPACITOR	0.010 50V
C433	QCF11HP–103	CER.CAPACITOR	0.010 50V
C434	QCF11HP–103	CER.CAPACITOR	0.010 50V
C435	QCF11HP–103	CER.CAPACITOR	0.010 50V
C436	QCF11HP–103	CER.CAPACITOR	0.010 50V
C437	QCF11HP–103	CER.CAPACITOR	0.010 50V
C438	QCF11HP–103	CER.CAPACITOR	0.010 50V
C439	QCF11HP–103	CER.CAPACITOR	0.010 50V
C440	QCF11HP–103	CER.CAPACITOR	0.010 50V
C441	QCF11HP–103	CER.CAPACITOR	0.010 50V
C442	QCF11HP–103	CER.CAPACITOR	0.010 50V
C443	QCF11HP–103	CER.CAPACITOR	0.010 50V
C444	QCF11HP–103	CER.CAPACITOR	0.010 50V
C445	QCF11HP–103	CER.CAPACITOR	0.010 50V
C447	QCF11HP–103	CER.CAPACITOR	0.010 50V
C448	QEX41CM–156	E CAP	15 16V

Symbol No.	Part No.	Part Name	Description
C500	QEX41CM–156	E CAP	15 16V
C600	QEX41CM–156	E CAP	15 16V
C601	QCT25CH–820	C CAP	82P 50V
C602	QCT25CH–820	C CAP	82P 50V
C603	QCT25CH–820	C CAP	82P 50V
C604	QCT25CH–820	C CAP	82P 50V
L201	SCV0331–270	PEAKING COIL	27μH
L202	SCV0331–390	PEAKING COIL	39μH
L203	SCV0331–221	PEAKING COIL	220μH
L204	SCV0331–221	PEAKING COIL	220μH
L205	SCV0331–150	PEAKING COIL	15μH
L206	SCV0331–221	PEAKING COIL	220μH
L207	SCV0331–221	PEAKING COIL	220μH
L208	SCV0331–150	PEAKING COIL	15μH
L209	SCV0331–220	PEAKING COIL	22μH
L210	SCV0331–120	PEAKING COIL	12μH
L301	SCV0331–270	PEAKING COIL	27μH
L302	SCV0331–390	PEAKING COIL	39μH
L303	SCV0331–221	PEAKING COIL	220μH
L304	SCV0331–221	PEAKING COIL	220μH
L305	SCV0331–150	PEAKING COIL	15μH
L306	SCV0331–221	PEAKING COIL	220μH
L307	SCV0331–221	PEAKING COIL	220μH
L308	SCV0331–150	PEAKING COIL	15μH
L309	SCV0331–220	PEAKING COIL	22μH
L310	SCV0331–120	PEAKING COIL	12μH
L401	SCV0331–100	PEAKING COIL	10μH
L402	SCV0331–221	PEAKING COIL	220μH
DL21	SCV1955	DELAY LINE	220μH
DL22	SCV1954	DELAY LINE	220μH
DL31	SCV1955	DELAY LINE	220μH
DL32	SCV1954	DELAY LINE	220μH
X1	SCV1762–001	CRYSTAL	220μH
CN4	SCV1704–200	CONNECTOR	220μH
CN14	SCV1929–100	CONNECTOR	220μH

DEC 13,1991

MANUAL CHANGE INFORMATION for KM-D600 SERVICE MANUAL

MCI No. SA-00-5132

Following sections are revised.
(Replacement all of section 2 & 3.)

Section 2 : Disassembly
Section 3 : Adjustment procedure

VICTOR COMPANY OF JAPAN,LTD
SPECIAL EQUIPMENT DIVISION

SECTION 2
DISASSEMBLY

2.1 FUSE REPLACEMENT

Before replacing a fuse, the reason why it blew should be invested to prevent trouble from spreading. The malfunction should be repaired before replacing the fuse.

2.1.1 Fuse inside the control unit

1. Set the POWER switch of the control unit to "OFF", and disconnect the power cord from an AC outlet.
2. Open the control panel according to "2.2.3 OPENING THE CONTROL PANEL".
3. There is the fuse on the PS unit on the bottom side.

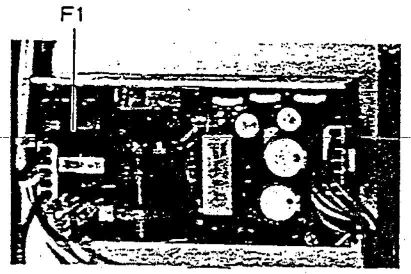


Fig. 2-1

For the safety and protection of the unit, replace only with fuse having specified part numbers.

Symbol No.	Specifications	Part No.
F1 (U ver.)	1 A 250 V	QMF51J2-1R0
F1 (E ver.)	T1 A 250 V	QMF51J2-1R0

2.1.2 Fuses inside the main unit

1. Set the POWER switch of the main unit to "OFF" and disconnect the power cord from an AC outlet.
2. Open the rear panel following the section 2.3.3.
3. There is a fuse on PS unit.

For safety and protection of the unit, replace only with fuses having the specified part numbers.

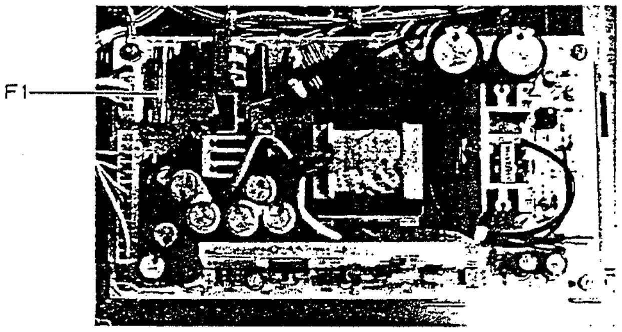


Fig. 2-2-1

- Affected serial numbers:

U version : ***50024 and before
EG version : ***50035 and before
EK version : Not affected
EA version : Not affected

Symbol No.	Specifications	Part No.
F1 (U ver.)	3 A 250 V	SCV1942-F1
F1 (E ver.)	T3.15 A 250 V	QMF51E2-3R15

- Affected serial numbers:

U version : ***50025 and after
EG version : ***50036 and after
EK version : ***50001 and after
EA version : ***50001 and after

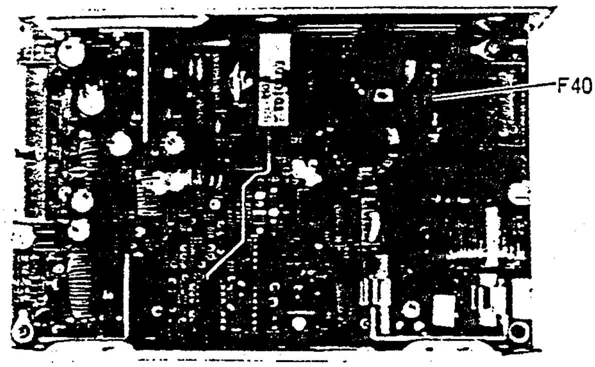
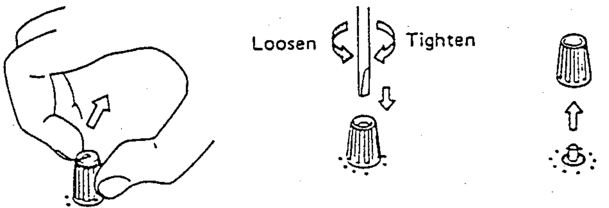


Fig. 2-2-2

Symbol No.	Specifications	Part No.
F40 (U ver.)	6.3 A 250 V	SCV1986-F40U
F40 (E ver.)	T6.3 A 250 V	SCV1986-F40E

2.2 CONTROL UNIT

2.2.1 Removal of knob



Remove the cap.

Loosen the screw turning counterclockwise with a screwdriver.

Remove the knob.

Fig. 2-3

2.2.2 Replacement of assembly lamp

a) Small-sized button

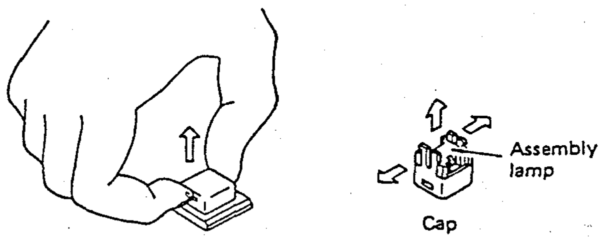


Fig. 2-4

1. Pull off the cap with a finger tip or a screwdriver by inserting its tip into the key slot.
2. Remove the assembly lamp out of the cap, then insert a new lamp as before.

2.2.3 Opening th control panel

1. *Remove three screws* ① *on the rear panel, then open* the control panel in the direction of the arrow.

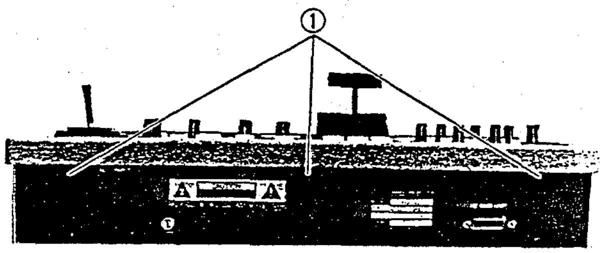


Fig. 2-5

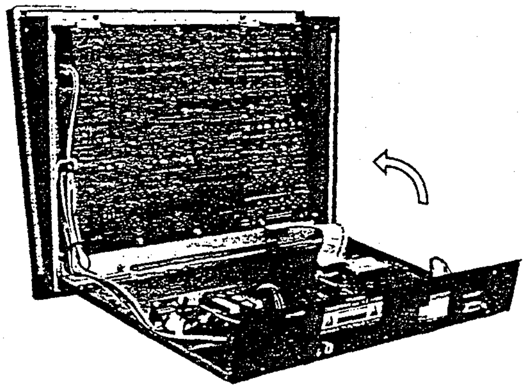


Fig. 2-6

2.2.4 Location of circuit boards

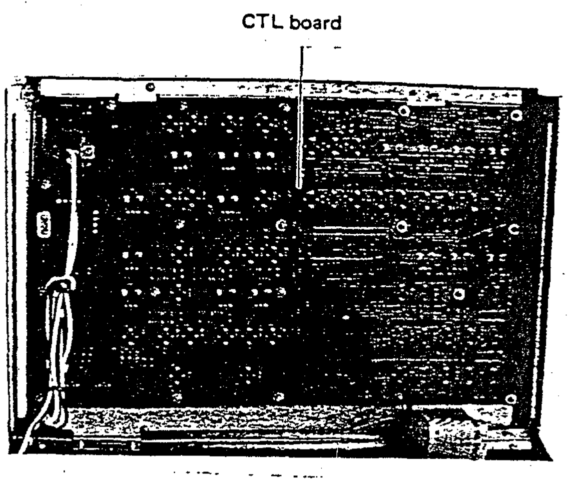


Fig. 2-7 (Panel side)

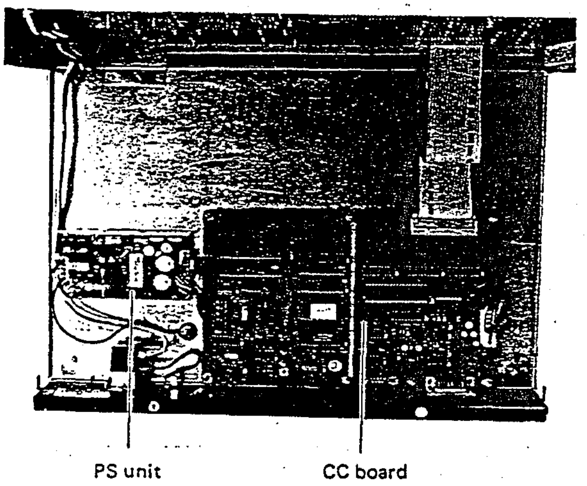


Fig. 2-8 (Bottom side)

2.2.5 Adjusting the torque of the fader lever

1. The torque adjustment of the fader lever can be done by turning a screws②.
   Turn it clockwise (↻) to increase the torque.
   Turn it counterclockwise (↺) to decrease the torque.

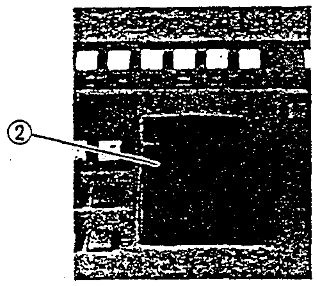


Fig. 2-9

2.2.6 Removal of the fader lever

1. Remove a screw ③, then remove the knob Ⓐ.
2. Remove a screw ④, then remove the cover Ⓑ.

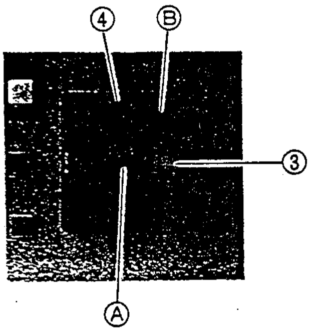


Fig. 2-10

3. Remove four screws ⑤, then take out the fader lever assembly.

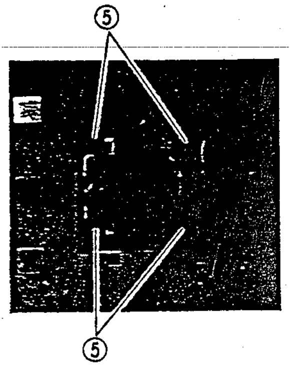


Fig. 2-11

4. The fader lever assembly can be removed completely by disconnecting the connector Ⓒ.

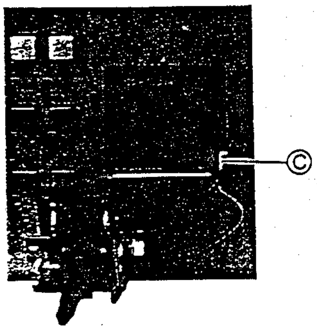


Fig. 2-12

2.2.7 Removal of the fader lever VR

1. Tilt the lever fully in the direction of the arrow.

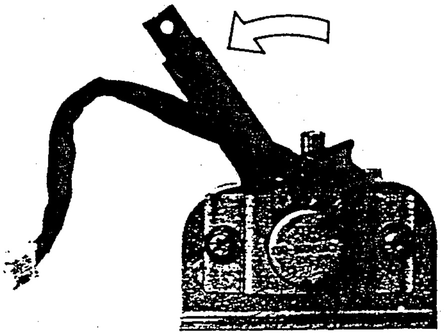


Fig. 2-13

2. Loosen a setscrew ⑥ which are fixing the VR axis to the lever by using hexagonal-head wrench from bottom side, then VR can be removed.

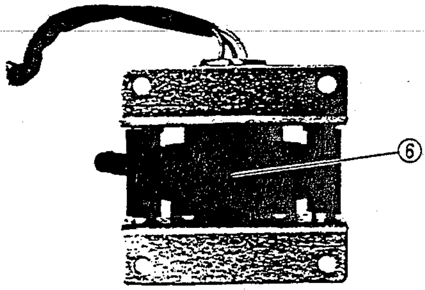


Fig. 2-14

3. Remove two screws ⑦.

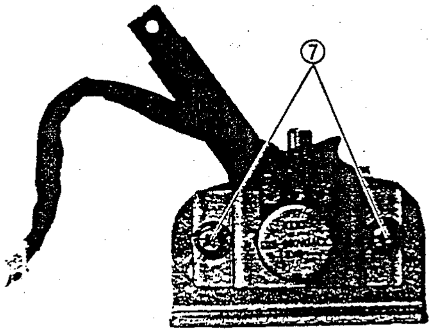


Fig. 2-15

2.2.8 Attaching of the fader lever VR

1. Attach the VR to the fader lever assembly by fixing two screws ⑦. (See Fig. 2-15.)
2. Tilt the fader lever torward the PRESET/KEY bus side.
3. Turn the axle of the VR Ⓖ fully counterclockwise by using a minus screwdriver.
4. Turn the axle of the VR clockwise by the minus screwdriver so that the notch of the axle and the lever become parallel.

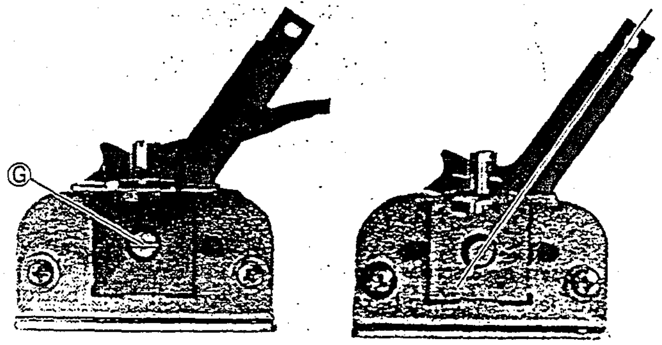


Fig. 2-16

5. Tighten a set screws ⑥ by using hexagonal-head wrench. (See Fig. 2-14)

2.3 MAIN UNIT

2.3.1 Removal of the front cover

1. Loosen four screws ⑨, then remove the front cover.

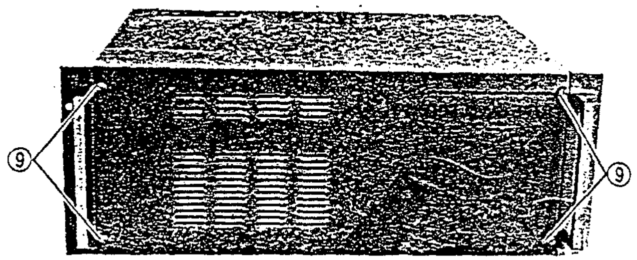


Fig. 2-17

2.3.2 Removal of the top cover

1. Remove seven screws ⑩ , then remove the top cover.

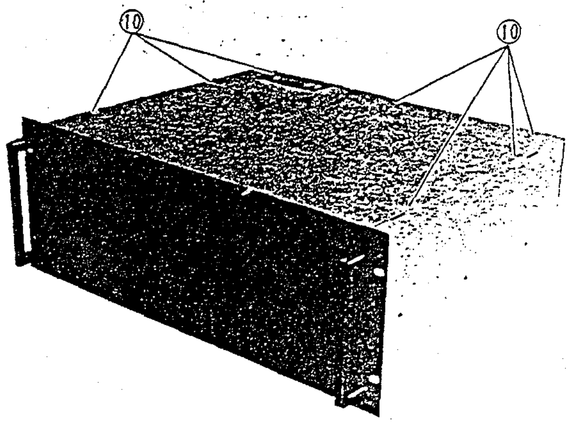


Fig. 2-18

2.3.3 Removal of the rear panel assembly

1. Remove seven screws ⑪ on the rear panel and disconnect five connectors Ⓓ on the MT board, then remove the rear panel assembly.

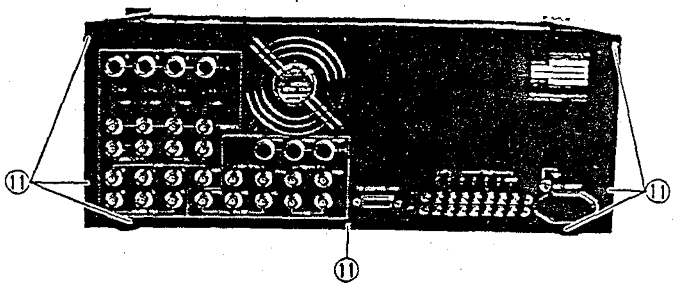


Fig. 2-19

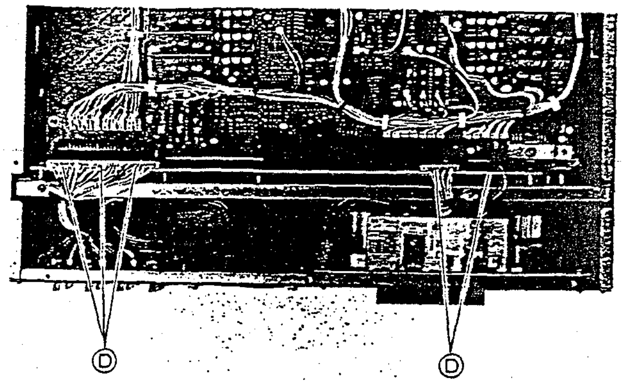


Fig. 2-20

2. By removing the rear panel, the PS unit, the BNC board and the TALLY board can be checked.

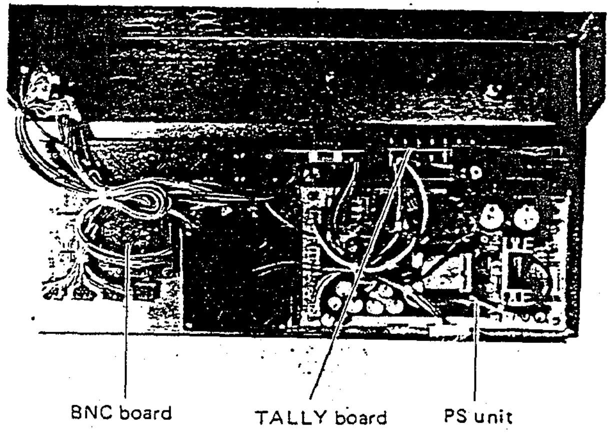


Fig. 2-21

2.3.4 Removal of the plug-in circuit boards

1. Remove the front cover following to the section 2.3.1.
2. Release the hooks Ⓔ (turn to front) on the both sides of the board simultaneously and pull the board out.

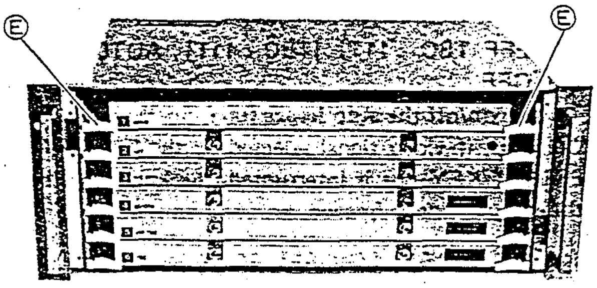


Fig. 2-22

- The plug-in circuit boards are:
  1. VIDEO board
  2. KEY board
  3. Y/C SEPA board
  4. SG/CPU board
  5. EFF TBC board
  6. TBC board

2.3.5 Removal of the PS unit

1. Remove the top cover according to the section 2.3.2.
2. Remove four screws ⑫ on the rear panel.

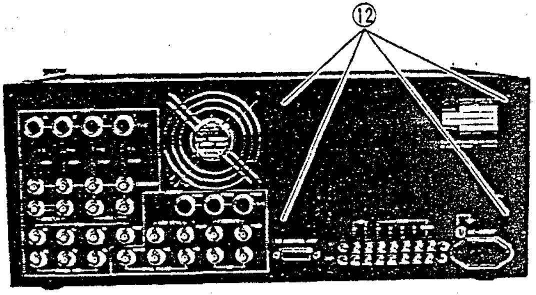


Fig. 2-23

3. Disconnect two connectors Ⓕ on the MT board and remove the wire-clamper by removing a screw ⑬.

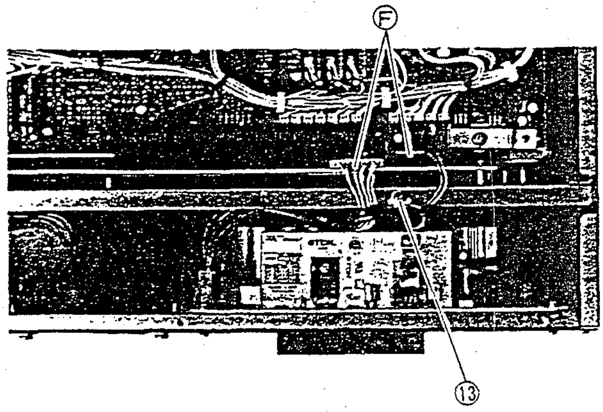


Fig. 2-24

4. Open the rear panel following the section 2.3.3, and remove the PS unit.

2.4 INNER CONNECTORS AND SWITCHES

- Underlined setting position of each item shows that set by factory at shipment.
- For the following procedure, refer to the Adjustment Parts Location diagrams of VIDEO, KEY, Y/C SEPA, SG/CPU, EFF TBC and TBC boards. (See section 3.)
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the connectors or switchies is located in.

2.4.1 VIDEO board (main unit)

- J1 [VIDEO - 2E] : 443/924
- J2 [VIDEO - 1P] : 443/924

These connectors are provided for the version of PAL system. In case of the version of NTSC system, short pins are provided instead of connectors.

They function to select video signals outputted from the PGM Y/C OUTPUT-1 connector on the rear panel.
When they are set to the "443" side, Y/C443 signal is outputted while Y/C924 signal is outputted by setting to the "924" side.

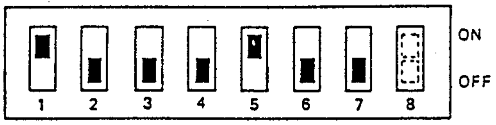
2.4.2 KEY board (main unit)

- J1 [KEY - 7K] : EXT/FILLY
  This connector functions to select DSK source when the DSK SOURCE button on the control panel is set to "EXT" (light goes out).
  When it is set to "EXT" side, signal that is inputted to the DSK KEY INPUT connector on the rear panel is the DSK source signal.
  When it is set to "FILLY" side, signal that is inputted to the DSK R/G/B INPUT connector is the DSK source signal.

2.4.3 SG/CPU board (main unit)

- J1 [SG/CPU - 6C] : VITC/NORMAL
  This connector functions to set the blanking width of video output signal which can be replaced by the KM-D600.
  When it is set to "VITC" side, changeable blanking period is set to 9H (NTSC)/7.5H (PAL). This setting enables the KM-D600 to output video signal containing VITC signal when it is inputted together with.
  When "NORMAL" side is selected, the blanking period can be changed in the range of 20H.

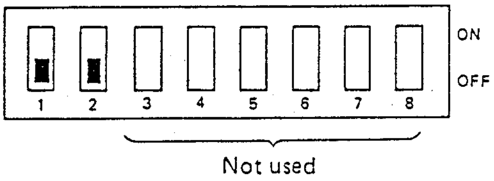
- S1 [SG/CPU - 5R]



Setting positions at shipment from factory

Switches 1 to 4 : For setting CPU operation.
Do not disturb the respective setting.
Switch 5 : ON/OFF switch of GPI function
ON : GPI function available
OFF : GPI function unavailable
Switch 6 : To select GPI mode
ON : Swap mode corresponding to MⅡ type VTR KR-M820
OFF : Normal GPI mode
Switch 7 : For switching between 1600 and D600 mode.
Refer to the section 2.5 for detail of these mode.
ON : 1600 mode
OFF : D600 mode
Switch 8 : For switching between NTSC and PAL
This switch doesn't work for switching between NTSC and PAL television system.
It is used for mode change of CPU.
ON : PAL
OFF : NTSC

- S2 [SG/CPU - 9K]



Setting positions at shipment from factory

Switches 1 to 2 : For setting operation mode of CPU.
Do not disturb these setting.

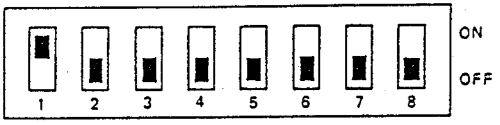
- S3 [SG/CPU - 11L]
  Hard reset button of the built-in CPU. When this button is pressed with the power on, the CPU and the memory are reset.
- S4 [SG/CPU - 11T], SC COARSE
  To adjust the phase of internal reference signal's subcarrier to external sync. signal.
  The phase is adjustable in three steps of 0°, 120° and 240°. Fine adjustment of the phase can be performed by the SC FINE (VR107) [SG/CPU - 11S] while horizontal phase by the H. PHASE (VR106) [SG/CPU - 11S].

2.4.4 EFF TBC, TBC boards (main unit)

- S1 [EFF TBC - 10U] [TBC - 10M], C POS
  Used to set Y/C timing. Do not disturb this switch unreasonably.
  For detail of setting, refer to the section 3.
- S2 [EFF TBC - 11T] [TBC - 11T], AUTO FREEZE ON/OFF
  To turn on/off the auto freeze function. When it is set to ON, and, if video signal selected by the PROGRAM or PRESET/KEY bus is interrupted, the image just before the interruption is freezed.
- J1 [EFF TBC-5F] [TBC-5F], SC TRAP ON/OFF
  ON/OFF connector of the subcarrier trap circuit. When it is set to ON, chroma components remaining in Y signal are removed. However, it is recommended to set it to OFF in usual since setting to ON deteriorates waveform comparatively.
- J2 [EFF TBC - 9B] [TBC - 9B], ON/OFF
  Connector to be used for adjustment. For detail of usage refer to the section 3.

2.4.5 CC board (control unit)

- S1



Setting positions at shipment from factory

1–4, 8 : To set operation condition of the CPU.
Do not disturb the original positions.
5–7 : Not used

2.5 1600 MODE AND D600 MODE

The KM-D600 prepares two kinds of modes: 1600 mode and D600 mode.

The D600 mode is the normal mode of the KM-D600, while the 1600 mode is an adjusting mode to process input video signals without the built-in TBC and Y/C separator. In the 1600 mode, operations by the control panel are the same as those by the KM-1600, and digital effects are consequently inoperative. In addition, this mode limits input video signal only to Y/C signal except in such a special case as adjustment.

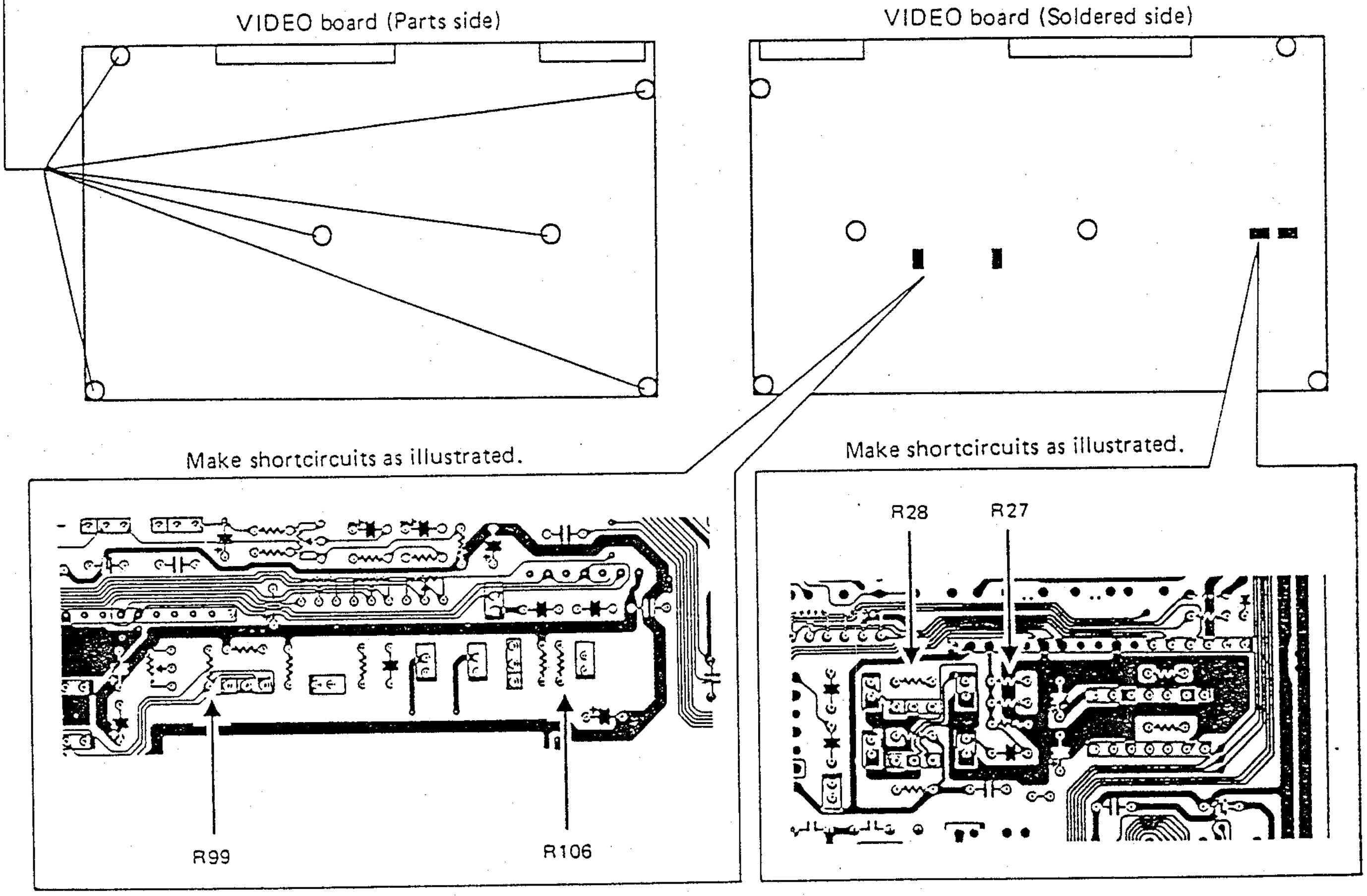
The following describes procedure to set to the 1600 mode.

1. Remove the Y/C SEPA board, EFF TBC and TBC board from the main unit.
2. Set the switch S1-7 on the SG-CPU board to ON. (Refer to the section 2.4.3.)
3. Remove six screws from the VIDEO board and take off the shield plate.
4. Shortcircuit respective lands of R28, R27, R99 and R106 by shorting wires (without resistors inserted).
5. For the unit have following serial number,dummy load(22 ohm,2 W) have to be connected between +5V and GND line.
   Because at 1600 mode,TBC,EFF-TBC and Y/C SEP board will be taken out and the dummy resister need to load for power supply.

***50025 and after (U version)
***50036 and after (EG version)
***50001 and after (EK version)
***50001 and after (EA version)

6. Fit the shield plate removed in the step 3 as it was.

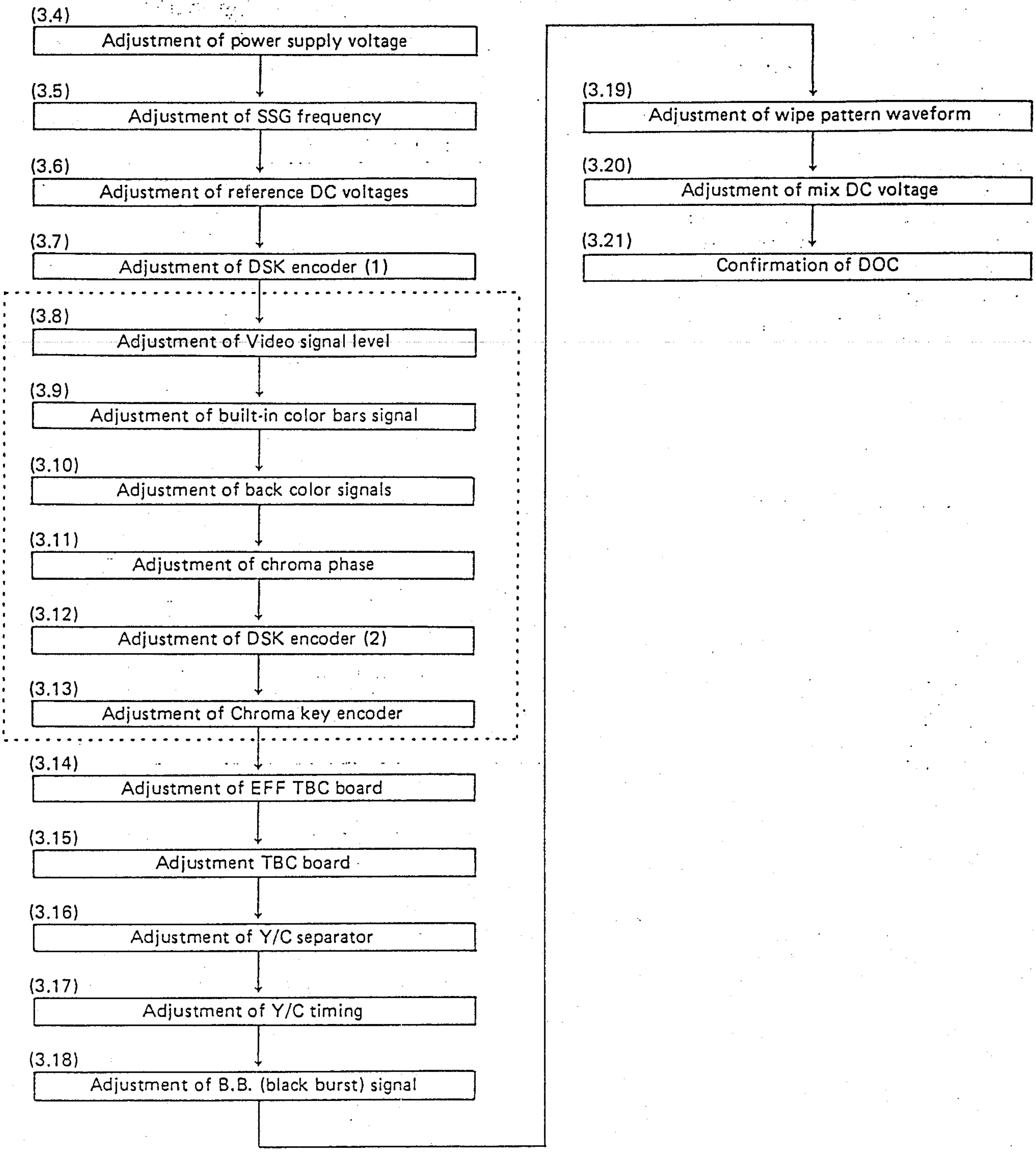
> After adjustment finishes, make sure to reset to the D600 mode.


VIDEO board (Parts side)
VIDEO board (Soldered side)
Make shortcircuits as illustrated.
Make shortcircuits as illustrated.
R28
R27
R99
R106

SECTION 3
ADJUSTMENT PROCEDURE

3.1 FLOWCHART OF ELECTRICAL ADJUSTMENT

- Figures in parentheses ( ) show section numbers of items.
- Items in ⬚ are subject to adjust in the 1600 mode. (For the 1600 mode, refer to Section 2.5.)


(3.4)
Adjustment of power supply voltage
(3.5)
Adjustment of SSG frequency
(3.6)
Adjustment of reference DC voltages
(3.7)
Adjustment of DSK encoder (1)
(3.8)
Adjustment of Video signal level
(3.9)
Adjustment of built-in color bars signal
(3.10)
Adjustment of back color signals
(3.11)
Adjustment of chroma phase
(3.12)
Adjustment of DSK encoder (2)
(3.13)
Adjustment of Chroma key encoder
(3.14)
Adjustment of EFF TBC board
(3.15)
Adjustment TBC board
(3.16)
Adjustment of Y/C separator
(3.17)
Adjustment of Y/C timing
(3.18)
Adjustment of B.B. (black burst) signal
(3.19)
Adjustment of wipe pattern waveform
(3.20)
Adjustment of mix DC voltage
(3.21)
Confirmation of DOC

3.2 REQUIRED EQUIPMENT AND STANDARD SETUP FOR ELECTRICAL ADJUSTMENT

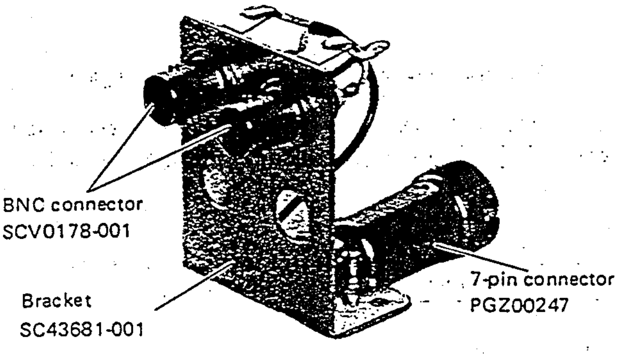
3.2.1 Necessary equipment and instruments

1. Color video camera with remote control unit
   (To be used as a color bar signal generator capable for outputting Y/C358 [Y/C443 for PAL] signal and R,G,B signals)
   - Combination examples

Color video camera	Remote control unit
KY-17, KY-25	RM-P200
KY-F30	Not required

2. DC voltmeter (digital voltmeter preferable)
3. Oscilloscope (dual-trace type preferable)
4. Frequency counter
5. Color video nominotor (understan type preferable)
6. Waveform monitor
7. Vectorscope
8. 7-pin to BNC conversion device
   (Necessary for adjustment of Y/C signal output level)
   Referring to the picture on the right, make such a device by yourself.
9. Test signal generator
   Capable for output of composite signal comprising multi-burst signal and 2T pulse.

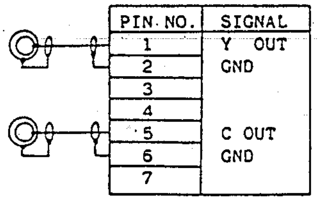
[Example of 7-pin to BNC conversion device]


BNC connector
SCV0178-001
Bracket
SC43681-001
7-pin connector
PGZ00247

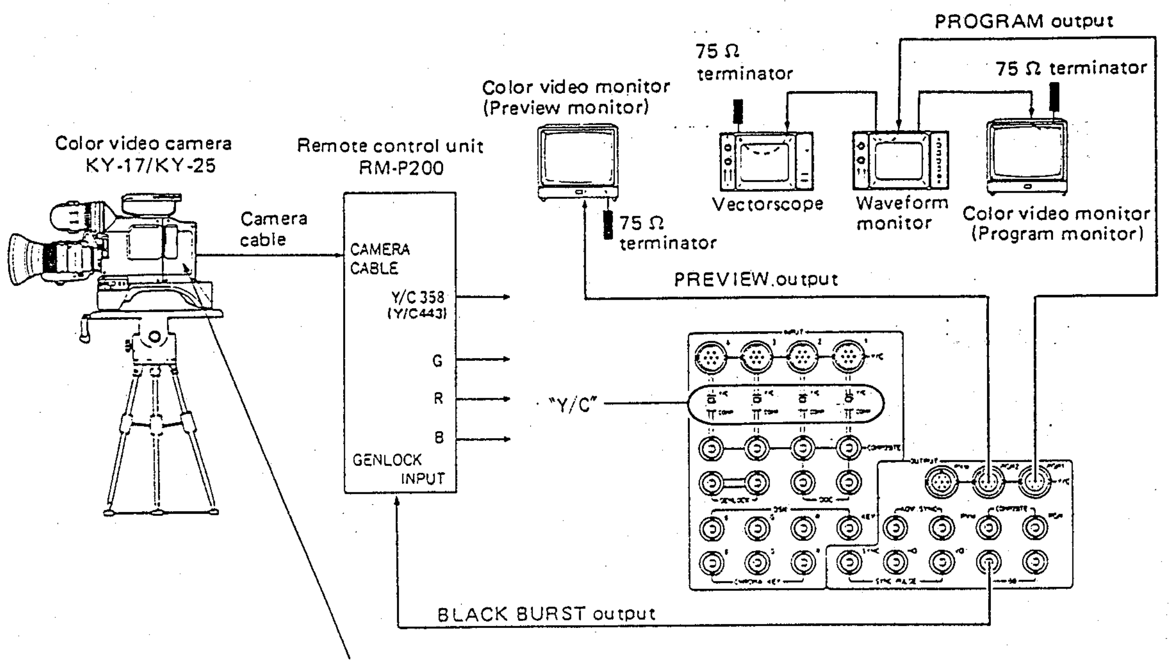
- Necessary parts (for output)

Parts Name	Parts Number	Q'ty
7-pin connector (Male)	PGZ00247	1
Bracket	SC43681-001	1
BNC connector	SCV0178-001	2

Wiring diagram


PIN NO.
SIGNAL
1
Y OUT
2
GND
3
4
5
C OUT
6
GND
7

3.2.2 Standard setup and connection

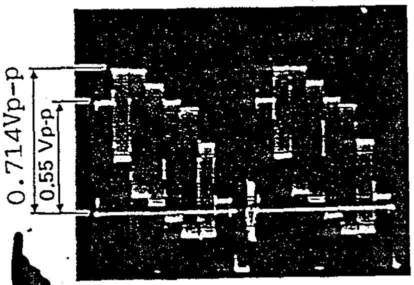

PROGRAM output
75 Ω terminator
75 Ω terminator
Color video monitor (Preview monitor)
Color video camera KY-17/KY-25
Remote control unit RM-P200
Camera cable
CAMERA CABLE
Y/C 358 (Y/C443)
G
R
B
GENLOCK INPUT
75 Ω terminator
Vectorscope
Waveform monitor
Color video monitor (Program monitor)
PREVIEW output
"Y/C"
BLACK BURST output

Set the CABLE SELECT switch on the side panel of the KA-20 to "RM" and set the position of the display switch (S1) located on the internal VP board according to the signal used in the adjustment.

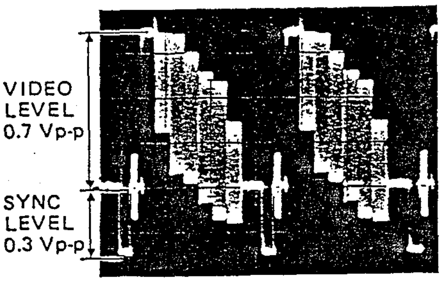
Setting position of the switch S1 on the KA-20's VP board
When YC358 (YC443) signal is used : Only "Y/C" ON
When R, G, B signals are used: Only "R/G/B" ON

3.2.3 Test signals necessary for adjustment

1. Color bars signal (composite)

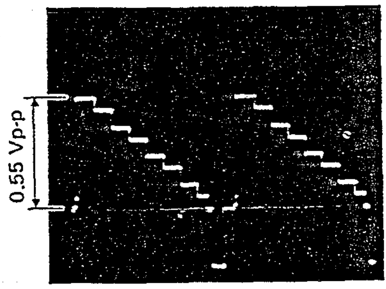


(NTSC)

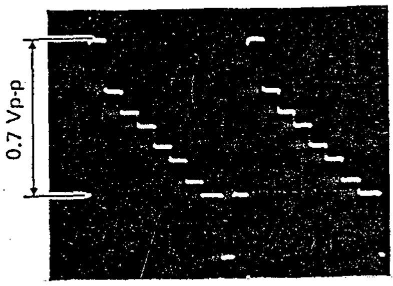


(PAL)

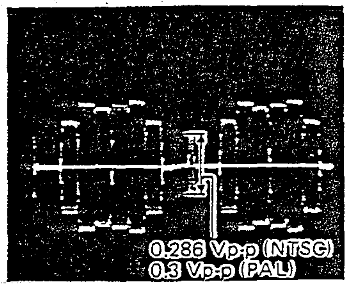
2. Color bars signal (Y/C)



Y (NTSC)

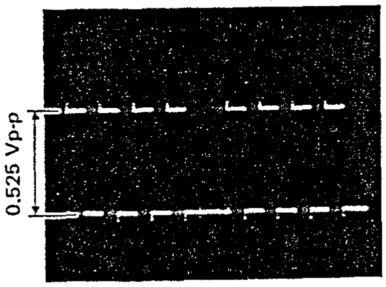


Y (PAL)

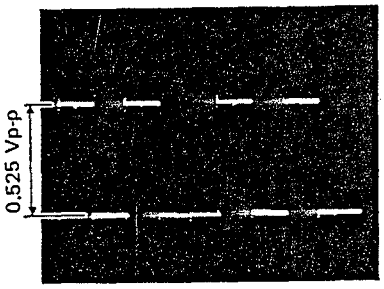


C

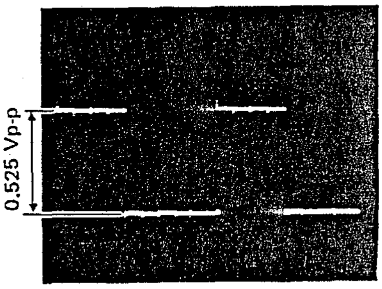
3. Color bar signal(R/G/B)



B

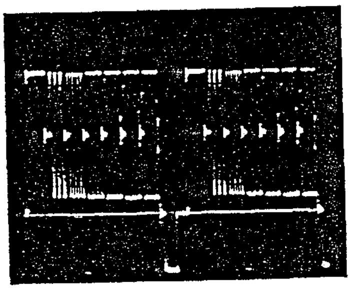


R

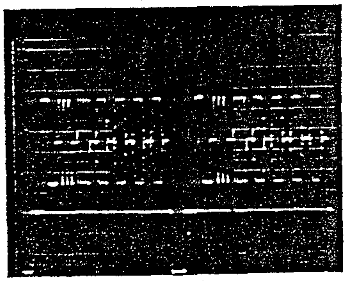


G

4. Multi-burst signal

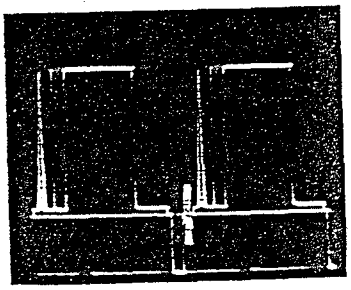


(NTSC)



(PAL)

5. 2T pulse



3.3 BEFORE ADJUSTMENT

- Adjust every P.C. board with the top cover of the main body open.
  To open the top cover, refer to Section 2.3.2.
- For adjusting a P.C. board, place the board at the top section replacing with another board set uppermost.
  After adjustment, make sure to return them to the original position respectively.
- When connecting and disconnecting plug-in boards, make sure to turn off the main power switch.

Note: Although plug-in boards can be plugged in to replace with another, do not set any board other than the TBC board and the EFF TBC board to the lowermost position (originally for the TBC board).

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.4 ADJUSTMENT OF POWER SUPPLY VOLTAGE

1	+5 V DC power supply	Digital voltmeter	• Set the SG/CPU board to the uppermost position. ◎ TP3 [SB/CPU - 2E] Ⓣ R62 [PS unit] ☆ +5 V	1) Regulate the voltage to be +5 V DC.

Note for the PS unit of following serial numbers.
***50025 and after (U version)
***50036 and after (EG version)
***50001 and after (EK version)
***50001 and after (EA version)

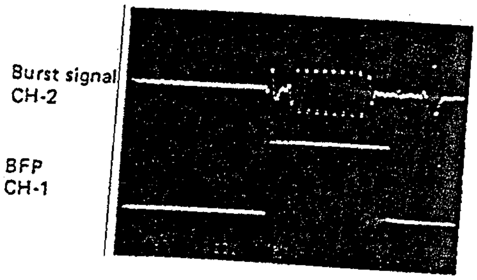
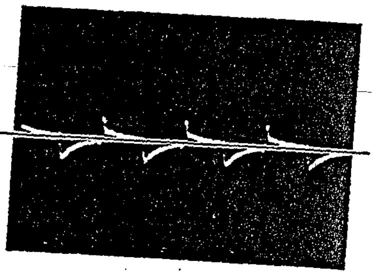
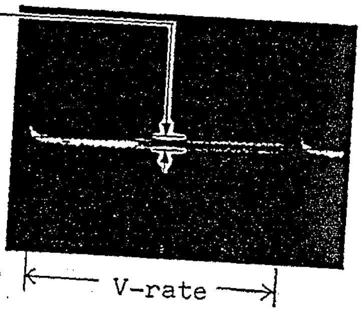
- Adjustment volume is:
  Ⓣ RV01
  ☆ + 5 V
- Other volumes RV2, RV3 and RV4 must not be disturbed.

3.5 ADJUSTMENT OF SSG FREQUENCY

Note:
- For the following procedure, refer to "Adjustment Parts Location of SG/CPU board" on page 3-8.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

1	SC frequency	Frequency counter Oscilloscope	• Set the SG/CPU board to the uppermost position. ◎ TP108 [SG/CPU - 10E] Ⓣ SC ADJ (VC100) [SG/CPU - 8C] ☆ NTSC: 3.579545 MHz ± 5 Hz PAL: 4.433619 MHz ± 10 Hz ◎ TP103 [SG/CPU-2C] Ⓣ SC LEVEL (R103) [SG/CPU-10D] ☆ 0.6 Vp-p	• Warm up the set for more than 15 minutes after the power is turned on. • Required specifications of a frequency counter to be used are: (1) Capable for indicating value in 8 figures or more. (2) Stability of more than 0.1 ppm or 1×10^{-7} at 0°C to 40°C. 1) Adjust SC frequency to meet the specifications. 2) Adjust SC level to meet the specification.
2	BFP position	Oscilloscope (10 : 1, H-rate)		• Supply VBS or B.B. (black burst) signal from a TV test signal generator, etc. to one of the the GENLOCK INPUT terminals on the rear panel and terminate the other terminal with a 75-ohm resistor. • Or, when a color video camera is connected according to the instruction of the Section 3.2.2, disconnect the cable connected to the GENLOCK INPUT connector of the camera, and input eh camera's VBS output to the KM-D600's GENLOCK INPUT connector.

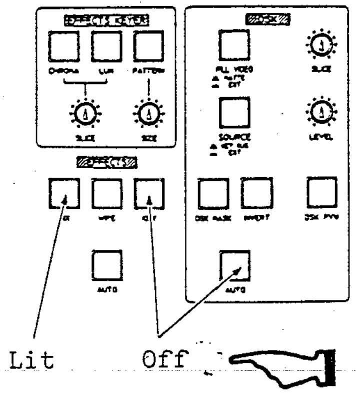
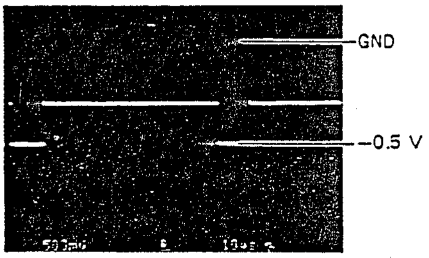
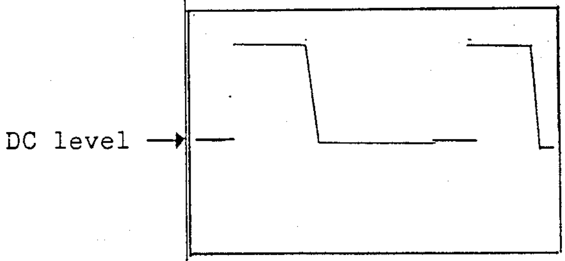
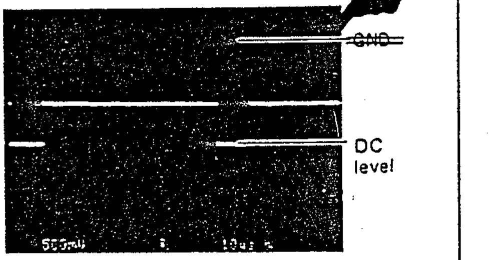
13

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ TP100 [SG/CPU - 6B] → ◎ TP101 [SG/CPU - 3B] → Ⓣ BFP PSTN (VR100) [SG/CPU - 4B] ☆ Burst signal is in the center of BFP.	1) Connect an oscilloscope as indicated below. → CH-1 → CH-2 2) Adjust VR100 to position burst signal (CH-2) in the center of BFP (CH-1). 
3	SC lock & H. lock	Oscilloscope (10 : 1, H-rate)	◎ TP104 [SG/CPU - 8F] Ⓣ SC LOCK (VR101) [SG/CPU - 9E] ☆ Adjust waveform to be horizontally symmetric.	1) Adjust VR101 to obtain such a waveform as shown below.  Note Following the above step 1), confirm the matter mentioned below. Select the built-in color bars by the PROGRAM bus line and observe output signal coming from the PROGRAM COMPOSITE OUT connector with a vectorscope. At this time, no jittering must be observed at any point. If jittering is observed on the screen, adjust VR101 to minimize it.
			◎ TP106 [SG/CPU - 6G] Ⓣ H. LOCK (VR102) [SG/CPU - 8H] ☆ Minimum jittering	2) Minimize jittering by adjusting VR102.  • Disconnect the cable from the KM-D600's GENLOCK INPUT connector. When the cable is disconnected from a camera's GENLOCK INPUT terminal, connect it again as it was.

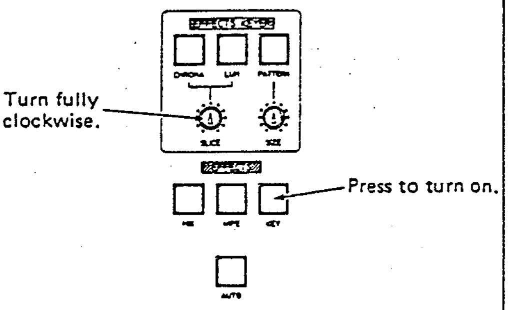
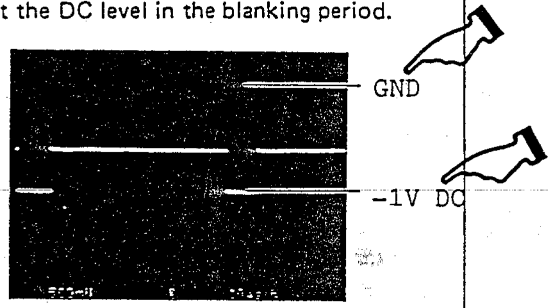
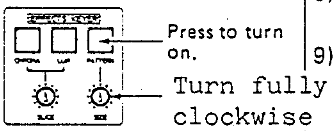
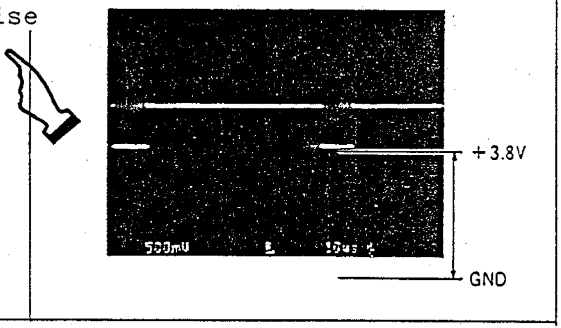
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

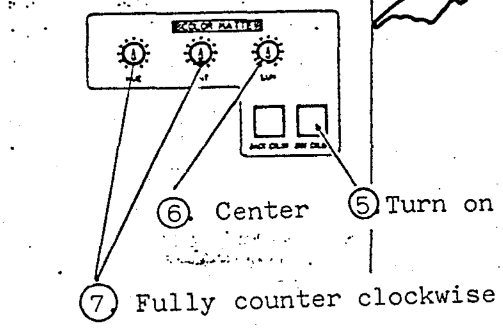
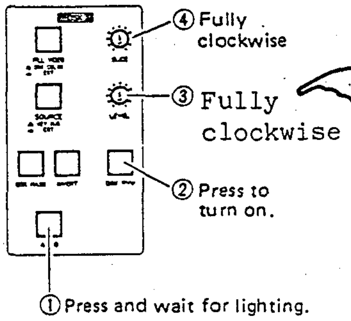
3.6 ADJUSTMENT OF REFERENCE DC VOLTAGES

Note: • For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

1	Preparation		• Set the KEY board to the uppermost position.	1) Set the FADER lever to the center .position. 2) Set the buttons as shown below.  CHROMA LUM PATTERN SLICE SIZE WIPE AUTO FILL VIDEO SLICE SOURCE LEVEL DSK MASK INVERT DSK PVW AUTO Lit Off
2	PGM control DC level	Oscilloscope (10 : 1, H-rate DC range)	◎ TP33 [KEY · 8J] Ⓣ PGM CTL DC (R365) [KEY · 11K] ☆ DC level of blanking: –0.5 V	3) Set the DC level in the blanking period. 
3	WIPE/KEY DC level		◎ TP32 [KEY · 8K] Ⓣ WIPE KEY DC (R203) [KEY · 8F] Wipe:on	4) Equalize two kinds of DC levels in the blanking period when the MIX button of the EFFECTS section and the WIPE button is pressed.  delete ~~GND~~ DC level Mix:on
4	SLIDE KEY DC level		◎ : TP32(KEY–8K) Ⓣ SLIDE KEY DC (R227) [KEY · 6B]	5) Set DC level of SLIDE KEY so that it does not vary in the blanking period despite of alternate on-off operation of the SLIDE button.

15

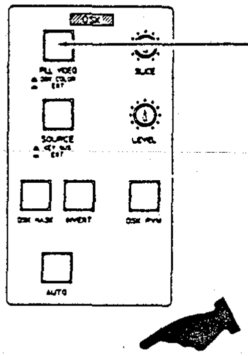
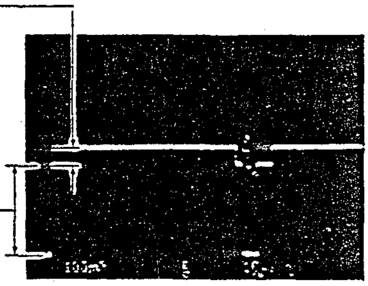
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓘ) Adjustment level (☆)	Adjustment procedure
5	Preset pattern control DC level	Oscilloscope (10 : 1, H-rate DC range)	◎ TP34 [KEY · 9L] Ⓘ PST CTL DC (R374) [KEY · 10L] ☆ DC level of blanking: −1 V	6) Set the buttons and controls as shown below.  Turn fully clockwise. Press to turn on. 7) Set the DC level in the blanking period. 
6	Preset pattern KEY DC level		 Press to turn on. Turn fully clockwise ◎ TP18 [KEY · 7D] Ⓘ P.P. KEY DC (R208) [KEY · 8G] ☆ DC level of blanking: +3.8 V	8) Set the button and control knob as shown on the left. 9) Set the DC level in the blanking period.  500mV 10us +3.8V GND

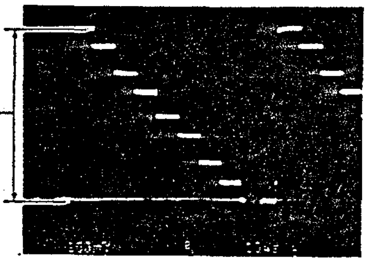
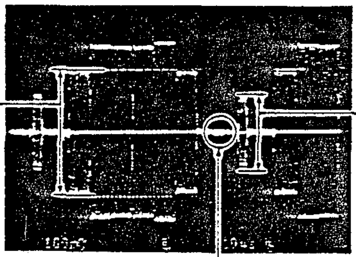
7	DSK DC level  COLOR MATTE ⑥ Center ⑤ Turn on ⑦ Fully counter clockwise  ④ Fully clockwise ③ Fully clockwise ② Press to turn on. ① Press and wait for lighting.	◎ PGM OUTPUT Ⓣ PGM DSK DC (R615) [KEY -8P] ◎ PVW OUTPUT Ⓣ PVW DSK DC (R617) [KEY -10N]	10) Set the buttons and controls on the control panel in order of ① through ⑦. 11) Adjust PGM DSK DC so that just righ after color bar disappear on the PGM monitor. 12) Adjust PVW DSK DC so that just right after color bar disappear on the PVW monitor.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.7 ADJUSTMENT OF DSK ENCODER (1)

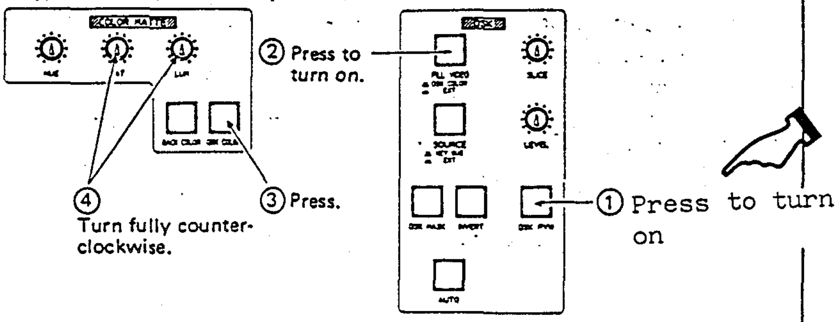
Note:
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

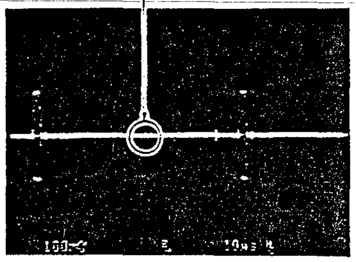
1	Preparation	R,G,B color bar	• Set the KEY board to the uppermost position. ◎ R/G/B OUTPUT terminal [Camera or Remote control unit] ☆ R,G,B signal levels: 0.525 Vp-p (respective) (with 75-ohm terminator)  DSK FILL VIDEO SLICE SOURCE LEVEL INVERT AUTO Ⓣ SC PHASE 2 (R502) [KEY - 4S] Ⓣ BURST PHASE (R440) [KEY - 3N] ☆ Mechanical center position (Fixed)	1) Check output levels of R, G, B signals of the camera or the remote control unit (color bar level). Hook up R, G, B signals after completion of the item 2 (Setup level adjustment) and item 3 (Sync level adjustment). 2) Press the FILL VIDEO button to turn off. 3) Set R440 and R502 to the mechanical center position respectively.
2	Setup level NTSC version only	Oscilloscope (10 : 1, H-rate)	◎ TP41 [KEY - 4N] Ⓣ SETUP LEVEL (R423) [KEY - 6K] ☆ Setup level: 54 mVp-p	1) Adjust setup level to meet the specified value. 
3	Sync level		◎ TP41 [KEY - 4N] Ⓣ SYNC LEV (R421) [KEY - 6K] ☆ Sync level NTSC : 0.286 Vp-p PAL : 0.3 Vp-p	1) Adjust sync level to meet the specified value.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
4	Y signal level	R,G,B color bars	◎ TP41 [KEY - 4N] ⦶ DSK FILL Y LEV (R398) [KEY - 2R] ☆ Y signal level NTSC : 0.55 Vp-p PAL : 0.525Vp-p	1) Supply R, G, B signals whose output levels have been confirmed in the item 1 "Preparation to the DSK R/G/B INPUT connector on the KM-D600's rear panel. 2) Adjust Y level to meet the specified value. 
5	Chroma level	Oscilloscope (10 : 1, H-rate) R,G,B color bars	◎ TP44 [KEY - 5S] ⦶ DSK FILL C LEV (R478) [KEY - 5S] ☆ Chroma level (corresponding to blue and yellow of color bars signal): 0.43 Vp-p This VR should be readjusted at 3.12 ADJUSTMENT OF DSK ENCODER(2)	1) Adjust chroma level to meet the specified value. 
			⦶ C. BAL (R469) [KEY - 4P] ⦶ C. BAL (R471) [KEY - 5P] ⦶ C. BAL (R472) (PAL only) [KEY - 4J] ☆ Minimum carrier leak	2) Minimize carrier leak.
			⦶ BURST LEV (R457) [KEY - 3N] ☆ Burst level: NTSC : 0.286 Vp-p PAL : 0.3 Vp-p	3) Adjust burst level to meet the specified value.

c9

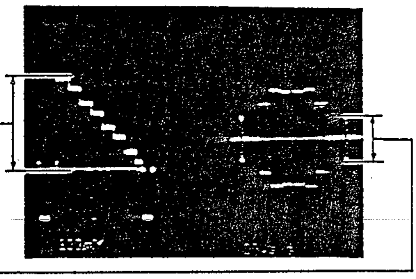
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
6	DSK color			1) Set buttons and controls on the front panel in order of ① through ④ as shown below.

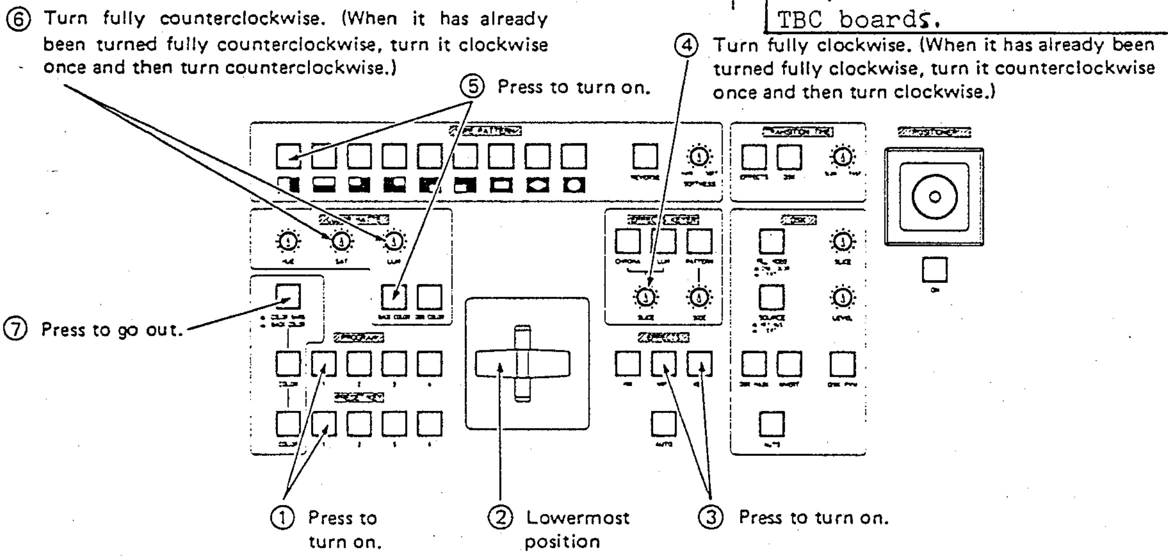

COLOR MATTE
HUE
SAT
LUM
BACK COLOR
DSK COLOR
② Press to turn on.
③ Press.
④ Turn fully counter-clockwise.
DSK
FULL VIDEO
SLICE
SOURCE
LEVEL
DSK MASK
INVERT
DSK PVW
AUTO
① Press to turn on

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
			◎ TP44 [KEY - 5S] ① PED ADJ (R412) [KEY - 2M] ☆ Minimum carrier leak	2) Minimize carrier leak. 

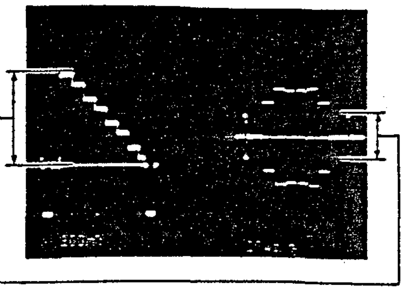
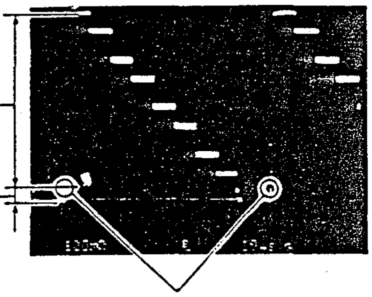
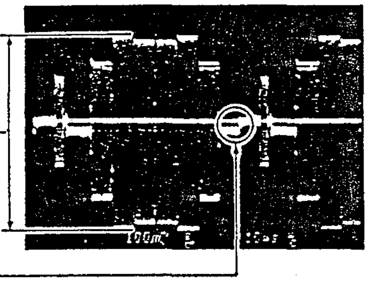
3.8 ADJUSTMENT OF VIDEO SIGNAL LEVEL

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)
- For proceeding to the following items, it is the first condition that the adjustment of the ENCODER has been completed.

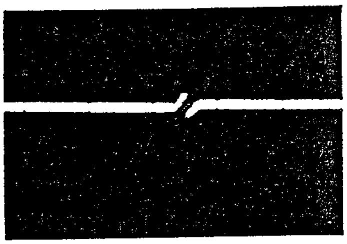
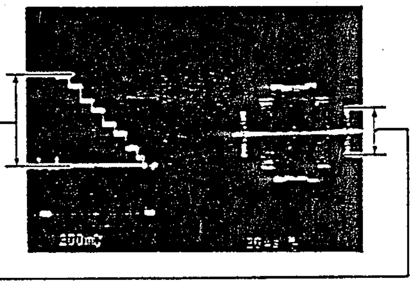
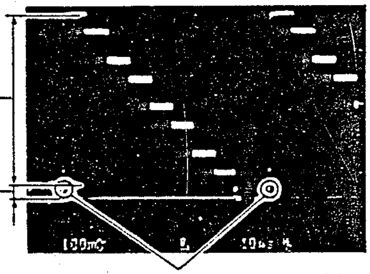
1	Preparation	NTSC: Y/C358 color bars PAL: Y/C443 color bars	◎ Y/C358 (Y/C443) OUTPUT terminal [Camera or Remote control unit] ☆ Y signal: NTSC : 0.55 Vp-p PAL : 0.7 Vp-p (with 75-ohm terminator) ☆ C signal: NTSC : 0.286 Vp-p PAL : 0.3 Vp-p (Burst level, with 75-ohm terminator) • Set the VIDEO board to the uppermost position.	1) Set the KM-D600 into the 1600 mode referring to the section 2.5. 2) Confirm the output level of Y/C signal (color bars) of a camera or a remote control unit.  Y signal C signal 3) Supply Y/C signal from a camera or remote control unit to the Y/C INPUT-1 connector on the KM-D600's rear panel. 4) Set the buttons and controls of the control panel in the following order (① to ⑦) as shown below. At 1600 mode, the phase of color bar may be incorrect. But, this is because of no TBC boards.

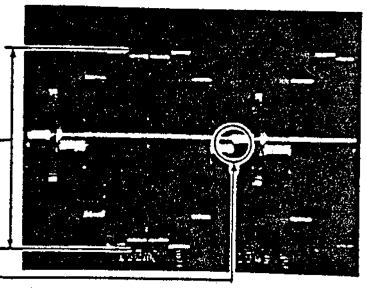
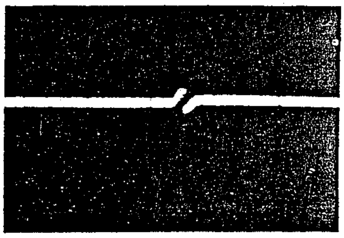


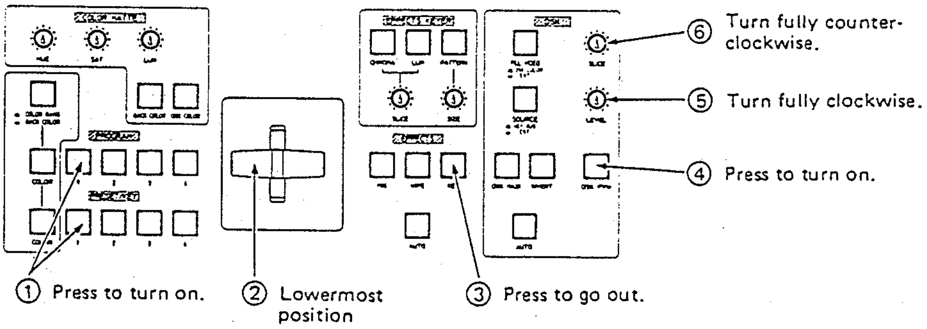
⑥ Turn fully counterclockwise. (When it has already been turned fully counterclockwise, turn it clockwise once and then turn counterclockwise.)
⑤ Press to turn on.
④ Turn fully clockwise. (When it has already been turned fully clockwise, turn it counterclockwise once and then turn clockwise.)
⑦ Press to go out.
① Press to turn on.
② Lowermost position
③ Press to turn on.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
2	Signal levels of PGM EFFECTS amp.	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ TP2 [VIDEO - 4B] ⦶ Y PGM GAIN 1 (R46) [VIDEO - 6E] ☆ Y signal: NTSC : 0.55 Vp-p PAL : 0.7 Vp-p	1) Adjust to obtain specified signal levels. 
			◎ TP7 [VIDEO - 4S] ⦶ C PGM GAIN 1 (R119) [VIDEO - 6N] ☆ C signal (Burst level) NTSC : 0.286 Vp-p PAL : 0.3 Vp-p	
			◎ TP2 [VIDEO - 4B] ⦶ Y PST GAIN 1 (R49) [VIDEO - 6D] ☆ Y signal levels are equalized*. ⦶ Y PST PED (R44) [VIDEO - 5D] ☆ Blanking period*: Flat	2) Adjust respective VRs so that signal level as the FADER lever is set to the uppermost position and signal level with the lever set to the lowermost position coincide with each other.  *Take note of stepping between blanking period and video signal period.
			◎ TP7 [VIDEO - 4S] ⦶ C PST GAIN 1 (R122) [VIDEO - 6N] ☆ Chroma levels are equalized. ⦶ C PST PED (R117) [VIDEO - 6N] ☆ Blanking period : Flat	

22

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
		Oscilloscope (10 : 1, H-rate 20 mV/div.)	◎ TP2 [VIDEO - 4B] Ⓣ DIF 1 (R38) [VIDEO - 6D] ☆ Minimize defect in Y signal waveform. ◎ TP7 [VIDEO - 4S] Ⓣ DIF 5 (R111) [VIDEO - 6N] ☆ Minimize defect in C signal waveform.	3) Press the "COLOR" button of the PROGRAM and PRESET/KEY bus lines. 4) Move the lever up and down and observe the waveform carefully. 5) When any moving defect is observed in the waveform as the lever is moved, adjust R38/R111 to minimize the defect.  Expanded view 6) Press the button "1" of the PROGRAM and PRESET/KEY bus lines again.
3	Signal levels of PVW EFFECTS amp.	Oscilloscope (10 : 1, H-rate 200 mV/div.) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ TP3 [VIDEO - 2D] Ⓣ Y PVW GAIN 1 (R60) [VIDEO - 5E] ☆ Y signal: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p ◎ TP8 [VIDEO - 4S] Ⓣ C PVW GAIN 1 (R133) [VIDEO - 5N] ☆ C signal: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p (Burst level) ◎ TP3 [VIDEO - 2D] Ⓣ Y PST GAIN 2 (R63) [VIDEO - 5D] ☆ Y signal levels are equalized*. Ⓣ Y PVW PED (R58) [VIDEO - 4D] ☆ Blanking period*: Flat	1) Set the FADER lever to the uppermost position. 2) Adjust signal levels to meet the specifications.  Y signal C signal 3) Adjust respective VRs to equalize signal levels as the FADER lever is set to the lowermost position and to the uppermost position.  *Take note of stepping between blanking period and video signal period.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
		Oscilloscope (10 : 1, H-rate 20 mV/div.)	◎ TP8 [VIDEO - 4S] Ⓣ C PST GAIN 2 (R136) [VIDEO - 5N] ☆ Chroma levels are equalized. Ⓣ C PVW PED (R131) [VIDEO - 5N] ☆ Blanking period: Flat ◎ TP3 [VIDEO - 2D] Ⓣ DIF 3 (R51) [VIDEO - 5D] ☆ Minize defect in Y signal waveform. ◎ TP8 [VIDEO - 4S] Ⓣ DIF 7 (R124) [VIDEO - 5N] ☆ Minimize defect in C signal waveform.	 4) Set the fader lever to lowermost position. 5) Press the "COLOR" button of the PROGRAM bus and PRESET/KEY bus lines. 6) Press the "PATTERN" button of the EFFECTS KEYER section. 7) Move the SIZE control of the EFFECTS KEYER section to right and left, and observe the waveform carefully. 8) When any moving defect in the waveform as the control is moved, minimize it by use of R51/R124.  9) Press the button "1" of the PROGRAM bus and PRESET/KEY bus lines again.
4	Signal levels of PGM DSK amp.	Oscilloscope (10 : 1, H-rate 200 mV/div.) NTSC: Y/C358 color bars PAL : Y/C443 color bars		1) Connect a 7-pin BNC conversion device to the PGM Y/C OUTPUT 1 connector on the rear panel of KM-D600. 2) Set buttons and controls of the control panel in the order of ① to ⑥ as shown below.



① Press to turn on.

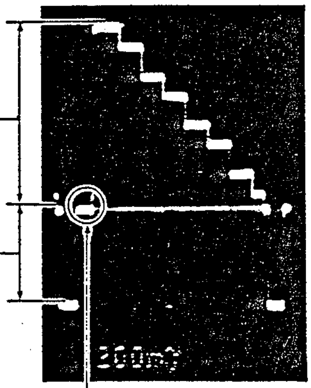
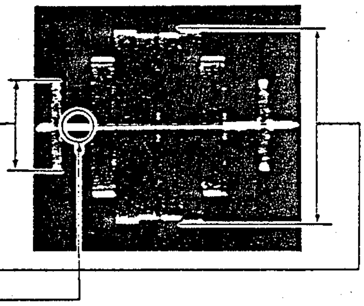
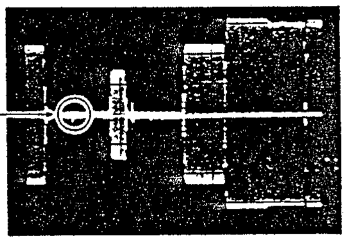
② Lowermost position

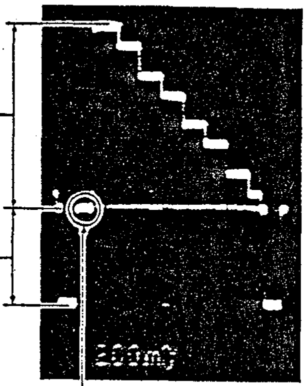
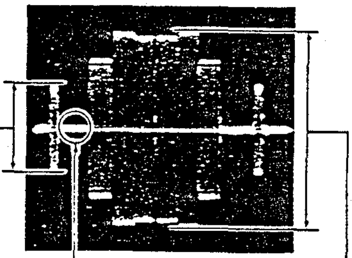
③ Press to go out.

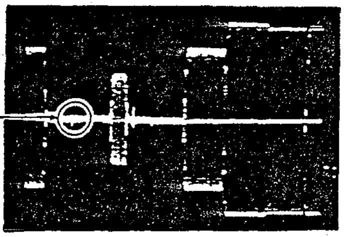
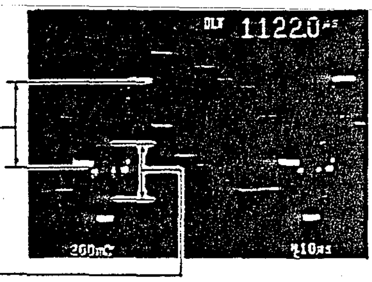
④ Press to turn on.

⑤ Turn fully clockwise.

⑥ Turn fully counter-clockwise.

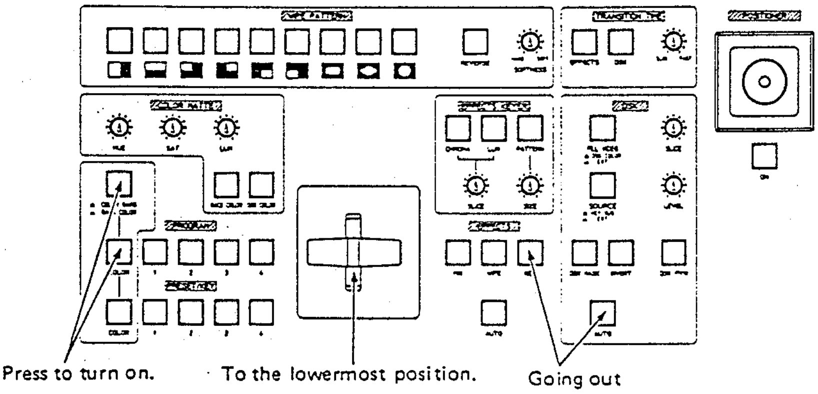
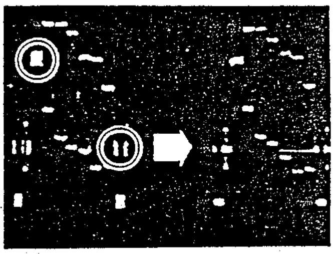
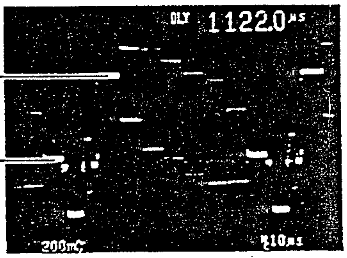
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ PGM Y/C OUTPUT 1 Y signal output (with 75-ohm terminator) [7-pin BNC conversion device] Ⓣ Y DSK GAIN (R77) [VIDEO - 4D] ☆ Sync leveel: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ Y PGM GAIN 2 (R74) [VIDEO - 4E] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p Ⓣ Y DSK PED (R71) [VIDEO - 4D] ☆ Blanking period: Flat	3) Adjust sync. level as specified.  Y signal 4) Adjust Y signal level and blanking period alternately.
		Oscilloscope (10 : 1, H-rate 200 mV/div.) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ C DSK GAIN (R149) [VIDEO - 4N] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	5) Adjust burst signal level as specified. 
		Oscilloscope (10 : 1, H-rate) Y/C358 color bars	◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] ◎ TP7 [VIDEO - 4S] ☆ C PGM GAIN 2 (R146) [VIDEO - 4N] Chroma level: Even Ⓣ C DSK PED (R144) [VIDEO - 4N] ☆ Blanking period: Flat - ◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ DIF 6 (R138) [VIDEO - 4N] ☆ Minimize defect in the back porch of burst signal.	6) Observe TP7's waveform by the other channel of the oscilloscope. 7) Adjust R146 to equalize chroma levels on the both channels. 8) Flatten the waveform in the blanking period. 9) Minimize defect in the stepping between blanking period and video signal period. 

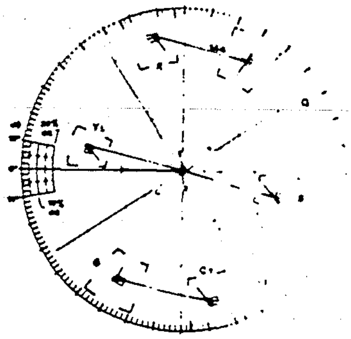
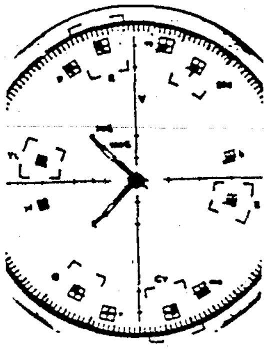
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
5	Signal levels of PVW DSK amp.	Oscilloscope (10 : 1, H-rate) NTSC: YC358 color bars PAL : YC443 color bars	① Y PVW GAIN (R461) [VIDEO - 2G] ① C PVW GAIN (R465) [VIDEO - 1S] ☆ Mechanical center (Fixed)	1) Connect a 7-pin BNC conversion device to the PVW Y/C OUTPUT connector on the rear panel. 2) Set R461 and R465 to the mechanical center position respectively. 3) Adjust SYNC level as specified.
			◎ PVW Y/C OUTPUT Y signal output (with 75-ohm terminator) [7-pin to BNC conversion device] ① Y DSK PVW GAIN (R90) [VIDEO - 3D] ☆ SYNC level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	
			① Y PVW GAIN 2 (R87) [VIDEO - 3E] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p ① Y DSK PVW PED (R85) [VIDEO - 3D] ☆ Blanking period : Flat	4) Alternately adjust Y signal level and blanking period to meet the specifications.
			◎ PVW Y/C OUTPUT C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] ① C DSK PVW GAIN (R163) [VIDEO - 3N] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	5) Adjust burst signal level as specified. 
			◎ PV W Y/C OUTPUT C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] ◎ TP8[VIDEO - 4S] ① C PVW GAIN 2 (R160) [VIDEO - 3N] ☆ Chroma levels: Even ① C DSK PVW PED (R158) [VIDEO - 3N] ☆ Blanking period: Flat	6) ObserveTP8's waveform on the other channel of the oscilloscope. 7) Adjust R160 to equalize chroma levels on the both channels. 8) Flatten the waveform in the blanking period.

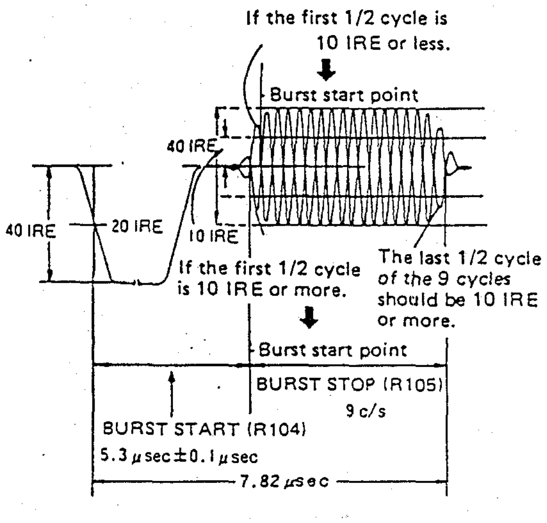
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
			◎ PVW Y/C OUTPUT C signal output (with 75-ohm terminator) [7-pin to BNC conversion device] Ⓣ DIF 8 (R151) [VIDEO -3N] ☆ Minimize defect in back porch of burst signal.	9) Minimize defect in the stepping between blanking period and video signal period. 
6	Composite signal output level	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) Ⓣ PGM GAIN (R329) [VIDEO - 5F] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ PGM Y GAIN (R317) [VIDEO - 5F] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p ◎ PVW COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ PVW GAIN (R345) [VIDEO - 4F] ☆ Burst level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ PVW Y GAIN (R333) [VIDEO - 4F] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p	1) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 2) Adjust burst level.  3) Adjust Y signal level. 4) Connect the oscilloscope to the PVW COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 5) Adjust burst level. 6) Adjust Y signal level.

3.9 ADJUSTMENT OF BUILT-IN COLOR BARS SIGNAL

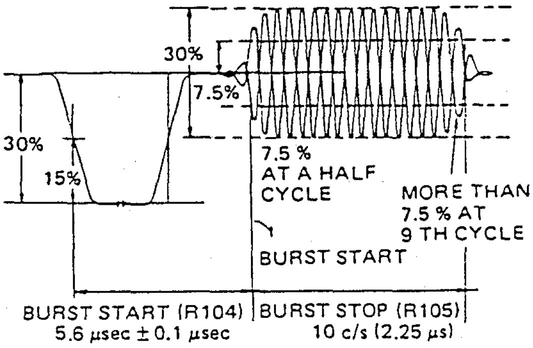
Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 3) Set the buttons and controls on the control panel as shown below.  Press to turn on. To the lowermost position. Going out
2	Carrier balance	Oscilloscope (10 : 1, H-rate)	Ⓣ SYNC GAIN (R219) [VIDEO - 5H] Ⓣ BURST LEV (R262) [VIDEO - 8G] Ⓣ BURST PHASE (R259) [VIDEO -8F] ☆ Mechanical center position - Ⓣ C. BAL (R272) [VIDEO - 8D] Ⓣ C. BAL (R276) [VIDEO - 8D] Ⓣ C. BAL (R277) (PAL only) [VIDEO - 8E] ☆ Minimum carrier leak	1) Set R219, R259 and R262 to the respective mechanical center positions. SYNC GAIN(R219):fixed mechanical center BURST LEV(R262) :⌉ These VRs should be BURST PHASE(R259):⌋ re-adjusted later. 2) Alternately turn VRs to minimize carrier leak in the white and black portions. 
3	Y signal level		Ⓣ Y GAIN (R197) [VIDEO - 10C] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.7 Vp-p	1) Adjust Y signal level as specified. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⏀) Adjustment level (☆)	Adjustment procedure
4	Color phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] ⏀ SC PHASE (R237) [VIDEO - 8H] ⏀ QUADRATURE (R239) [VIDEO - 8H] ⏀ R-Y GAIN (R258) [VIDEO - 8F] ⏀ C. GAIN (R231) [VIDEO - 7C] ⏀ ~~BURST PHASE (R250) [VIDEO - 8F, Adjust for PAL only]~~  – NTSC –	1) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the GAIN control of the vectorscope to "CAL" or "75%" (preset position). 3) Adjust VRs to position every spot (R, G, B, Mg, Cy, Yl) in the respective point (⊞) on the vectorscope screen. Deleted  – PAL –
5	Adjusting the burst position and width	Waveform monitor or Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (75-ohm terminated) [Rear panel] ⏀ BURST START (R104) [SG/CPU - 10C] ⏀ BURST STOP (R105) [SG/CPU - 9C]	1) Match them as follows.


If the first 1/2 cycle is 10 IRE or less.
Burst start point
40 IRE
40 IRE
20 IRE
10 IRE
If the first 1/2 cycle is 10 IRE or more.
The last 1/2 cycle of the 9 cycles should be 10 IRE or more.
Burst start point
BURST STOP (R105)
9 c/s
BURST START (R104)
5.3 μsec±0.1 μsec
7.82 μsec

– NTSC –


30%
7.5%
30%
15%
7.5 % AT A HALF CYCLE
MORE THAN 7.5 % AT 9 TH CYCLE
BURST START
BURST START (R104)
5.6 μsec ± 0.1 μsec
BURST STOP (R105)
10 c/s (2.25 μs)

– PAL –

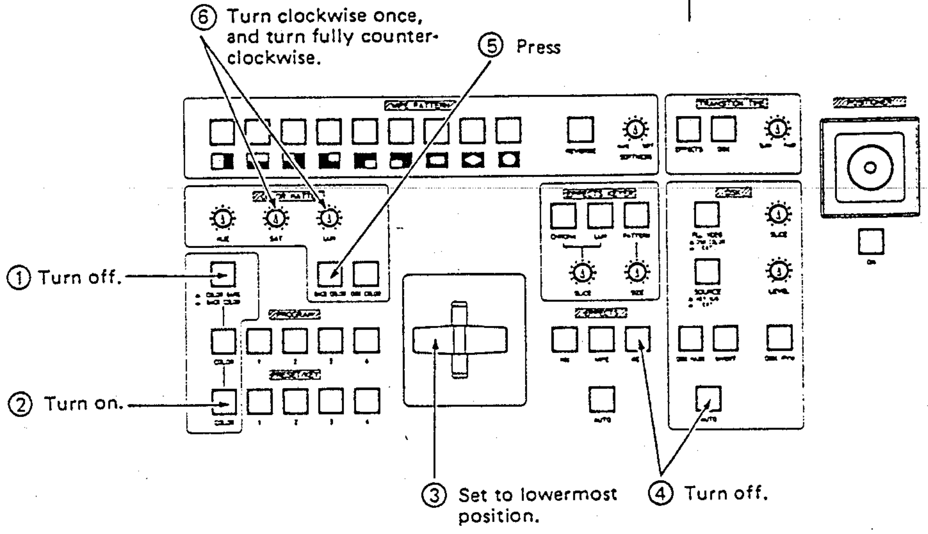
2-9

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.10 ADJUSTMENT OF BACK COLOR SIGNALS

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector. 3) Set buttons and controls on the control panel as shown below. (Set in the order of ① to ⑥).



⑥ Turn clockwise once, and turn fully counterclockwise.

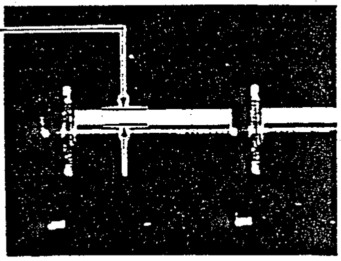
⑤ Press

① Turn off.

② Turn on.

③ Set to lowermost position.

④ Turn off.

2	Pedestal level	Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ PED ADJ (R210) [VIDEO -9H] ☆ Minimum carrier leak	1) Adjust to minimize carrier leak. 

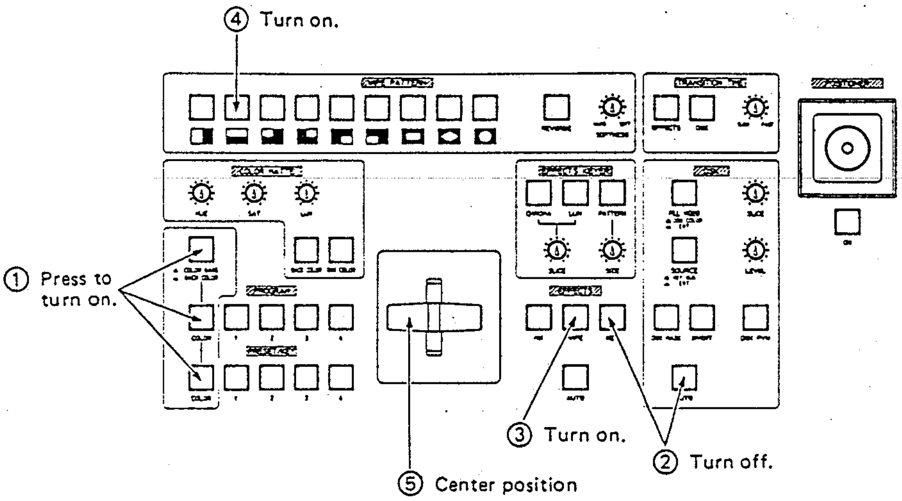
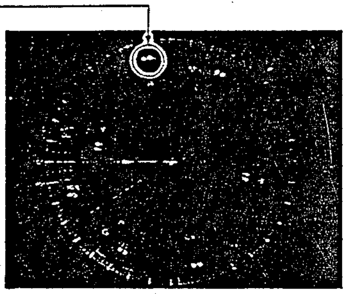
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.11 ADJUSTMENT OF CHROMA PHASE

Note: • Adjust in the 1600 mode (see Section 2.5).

Note: • For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.

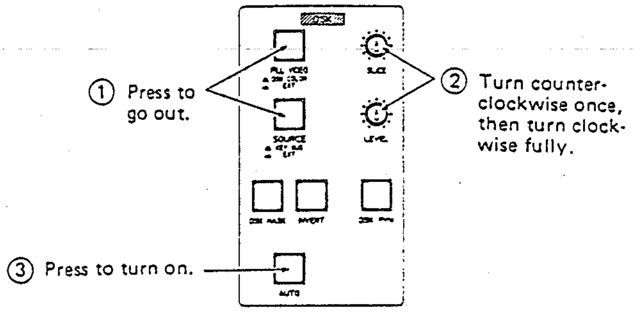
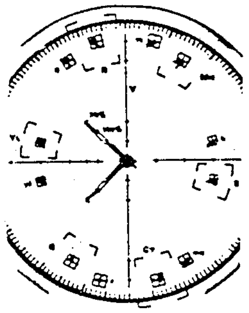
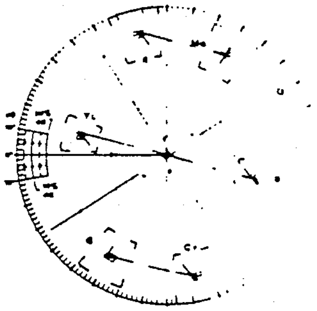
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector on the rear panel. 3) Set buttons and controls on the control panel as shown below. (Proceed in the order of ① to ⑤.)  ④ Turn on. ① Press to turn on. ③ Turn on. ② Turn off. ⑤ Center position
2	Chroma phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ PST PHASE (R107) [VIDEO · 6P] ☆ Adjust to position every dot at the same point.	1) Adjust R107 so that every point becomes a small spot in the respective ⊞ on the vectorscope screen. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

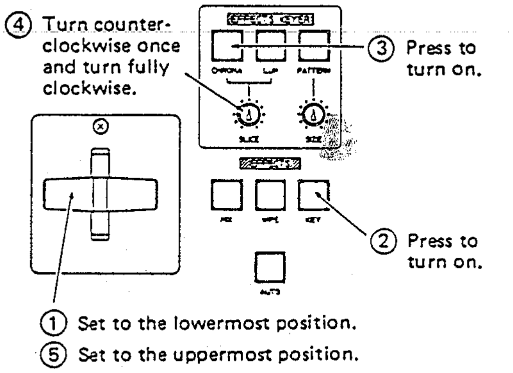
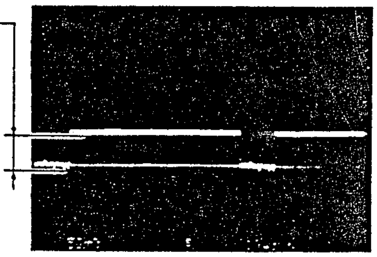
3.12 ADJUSTMENT OF DSK ENCODER (2)

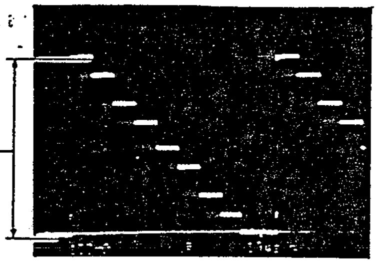
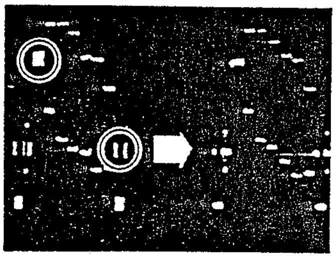
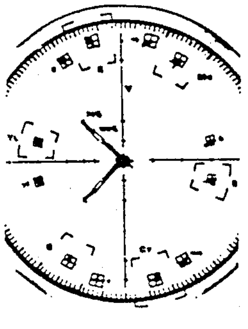
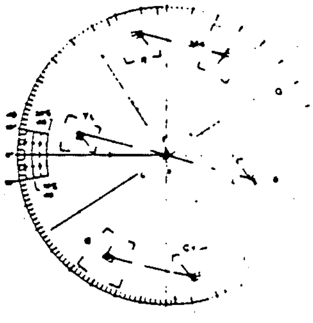
Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

1	Preparation	R,G,B color bars	• Set the KEY board to the uppermost position. R/G/B OUTPUT terminal [Camera or Remote control unit] R,G,B signal level: 0.525 Vp-p (with 75-ohm terminator)	1) Set KM-D600 into the 1600 mode (see the section 2.5). 2) Check respective output levels of R, G, B signals of the camera or remote control unit (color bars signal). 3) Supply the R,G,B signals to the DSK R/G/B INPUT connector of the KM-D600's rear panel. 4) Set buttons and controls of the control panel in the order of ① through ③ as shown below.  ① Press to go out. ② Turn counter-clockwise once, then turn clockwise fully. ③ Press to turn on.
2	Color phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ QUADRATURE 2 (R504) [KEY - 3R] Ⓣ R-Y LEV (R455) [KEY - 4N] Ⓣ BURST PHASE (R440) [KEY - 3N; Adjust for PAL only] Ⓣ DSK FILL C LEV(R478) (KEY-5S)  – PAL –	1) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the vectorscope's gain control to "CAL" or "75% (preset)" position. 3) Adjust VRs to position each spot (R, G, B, Mg, Cy, Yl) in the respective point (⊞) on the vectorscope screen.  – NTSC –

3.13 ADJUSTMENT OF CHROMAKEY ENCODER

Note:
- Adjust in the 1600 mode (see Section 2.5).
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

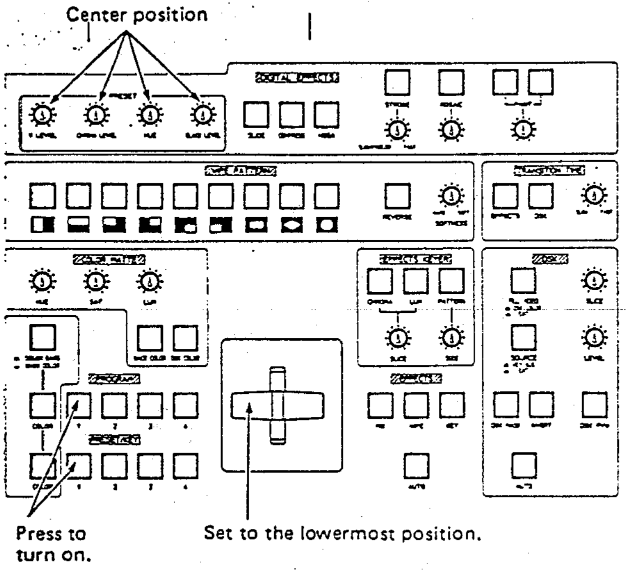
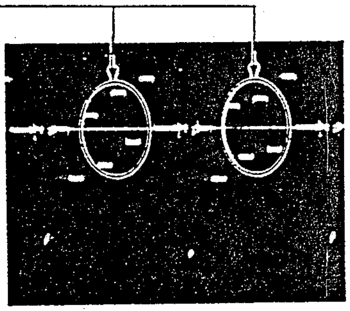
1	Preparation	R,G,B color bars	• Set the KEY board to the uppermost position. Ⓣ R/G/B OUTPUT terminal [Camera or Remote control unit] ☆ R,G,B signal level: 0.525 Vp-p (with 75-ohm terminator)	1) Set KM-D600 into the 1600 mode (refer to the section 2.5). 2) Check respective output levels of R, G, B signals of the camera or remote control unit (color bar level). 3) Supply the R, G, B signals to the CHROMA KEY R/G/B INPUT connector of the KM-1600's rear panel. 4) Set buttons and controls of the control panel in the order of ① through ⑤ as shown below. 5)Press DSK AUTO button to turn off.  ④ Turn counter-clockwise once and turn fully clockwise. ③ Press to turn on. ② Press to turn on. ① Set to the lowermost position. ⑤ Set to the uppermost position.
			◎ BURST LEV (R573) [KEY - 2K] Ⓣ BURST PHASE (R576) [KEY - 5J] ☆ Mechanical center position	4) Set R576 and R573 to their mechanical center positions respectively.
2	Setup level NTSC version only	Oscilloscope (10 : 1, H-rate)	◎ TP24 [KEY - 1L] Ⓣ SET UP LEVEL(R602) [KEY - 6L] ☆ Setup level: 54 mVp-p	1) Stop inputting the R, G, B signals. 2) Adjust setup level to meet the specifications. 

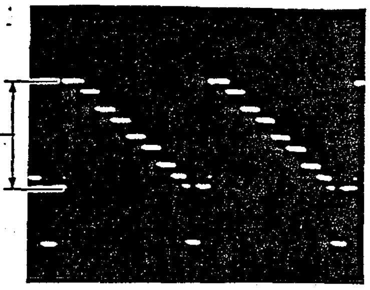
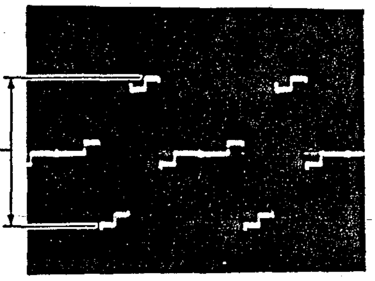
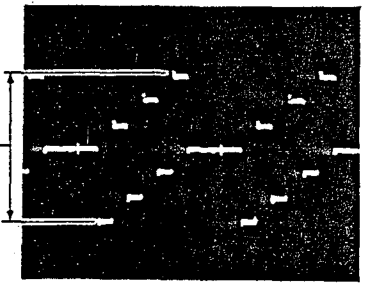
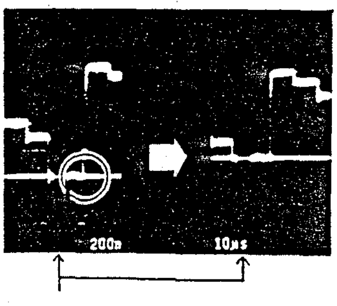
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	Y signal level		◎ TP24 [KEY · 1L] Ⓣ CHR FILL Y LEV (R252) [KEY · 2M] ☆ Y signal level: NTSC; 0.55 Vp-p PAL ; 0.525Vp-p	1) Again, supply R, G, B signals. 2) Adjust Y signal level to meet the specified value.  **Note for NTSC version** Make sure to repeat the items 2 (Setup level) and 3 (Y signal level) several times.
4	Carrier balance	Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ C. BAL (R278 [KEY · 3J] Ⓣ C. BAL (R280) [KEY · 4H] Ⓣ C. BAL (R281) (PAL only) [KEY · 4J] ☆ Minimum carrier leak	1) Connect an oscilloscope to the PGM COMPOSITE OUTPUT connector of the rear panel (with 75-ohm terminator). 2) Alternately turn VRs to minimize carrier leaks in the white and black sections. 
5	Color phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ SC PHASE (R289) [KEY · 2K] Ⓣ QUADRATURE (R291) [KEY · 2J] Ⓣ R-Y GAIN (R265) [KEY · 4L] Ⓣ CHR FILL C. LEV (R296) [KEY · 3G] Ⓣ BURST PHASE (R576) [KEY · 5J; Adjust for PAL only]  – PAL –	1) Connect an vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the vectorscope's GAIN control to "CAL" or "75% (preset)" position. 3) Adjust VRs to position each spot (R, G, B, Mg, Cy, Yl) in the respective point (⊟) on the vectorscope screen.  – NTSC –

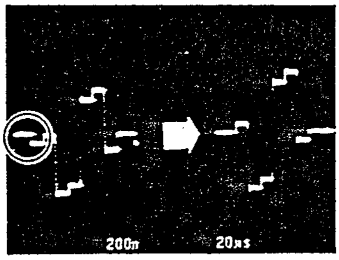
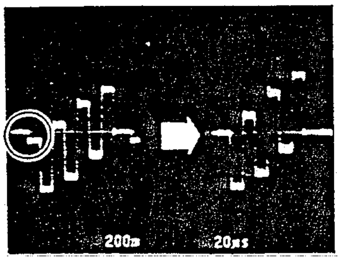
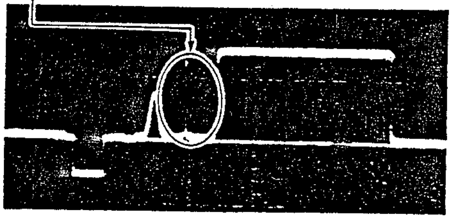
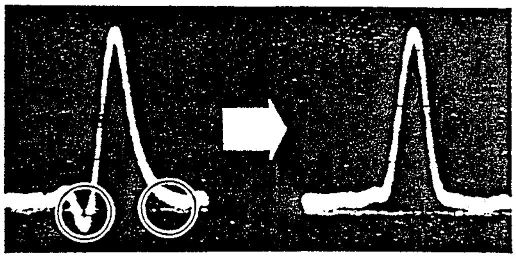
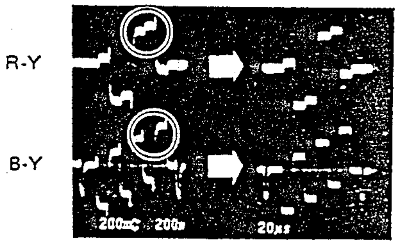
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓘ) Adjustment level (☆)	Adjustment procedure

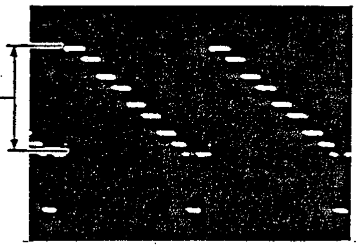
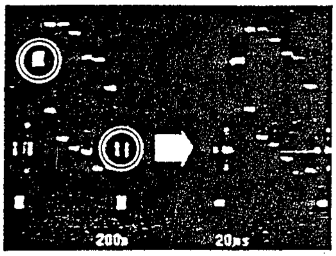
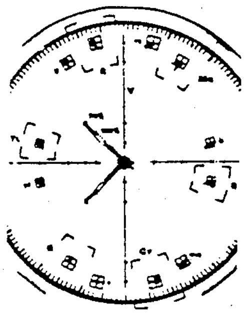
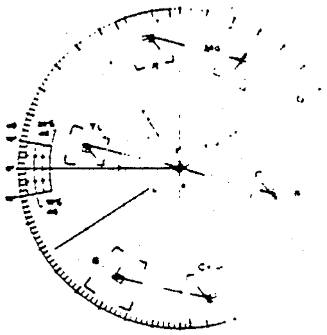
3.14 ADJUSTMENT OF EFF TBC BOARD

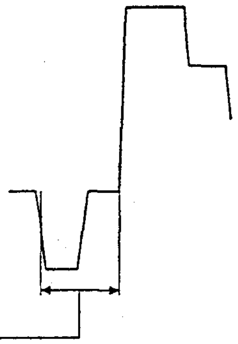
Note:
- For the following procedure, refer to "Adjustment Parts Location of EFF TBC board" on page 3-9.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓘ) Adjustment level (☆)	Adjustment procedure
1	Preparation	NTSC: Y/C358 color bars PAL : Y/C443 color bars  Center position Press to turn on. Set to the lowermost position.	• Set the EFF TBC board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Turn off the AUTO FREEZE switch of the EFF TBC board. (This switch is located at the position of the address 11T.) 3) Input Y/C signal of the camera or remote control unit to the Y/C INPUT-1 connector of the KM-D600's rear panel. 4) Set buttons and controls as shown in the left figure. Note: Set all the WIPE, MIX, KEY, DSK and DIGITAL EFFECTs to OFF.
2	VCXO	Frequency counter	Ⓘ J2 [EFF TBC - 10C] ☆ ON ◎ TP11 [EFF TBC - 11A] Ⓘ VCXO (C40) [EFF TBC - 10A] ☆ NTSC: 3.579545 MHz ± 20 Hz PAL : 4.433619 MHz ± 20 Hz Ⓘ J2 [EFF TBC - 10C] ☆ OFF	1) Set the switch connector of the board J2 to ON. 2) Adjust the frequency as specified. 3) Set J2 to OFF.
3	Color phase	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	◎ TP4 [EFF TBC - 11G] Ⓘ HUE (VR2) [EFF TBC - 8A] ☆ Waveform is the same in the two points.	1) Adjust waveform in an optional line to be the same as that of 1H before. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
4	Input level	Oscilloscope (10 : 1, H-rate) NTSC: Y/C358 color bars PAL : Y/C443 color bars	• Y level ◎ TP2 [EFF TBC - 8G] ⦶ Y AD LEV (VR3) [EFF TBC - 6D] ☆ NTSC: 1.3 Vp-p (75% white level) PAL : 1.73 Vp-p (100% white level) • R-Y level ◎ TP3 [EFF TBC - 10G] ⦶ R-Y AD LEV (VR1) [EFF TBC - 8B] ☆ 1.3 Vp-p • B-Y level ◎ TP4 [EFF TBC - 11G] ⦶ B-Y AD LEV (VR7) [EFF TBC - 10E] ☆ 1.3 Vp-p	1) Adjust the respective signal level as specified.   
5	Reference voltage of D/A converter	Digital voltmeter	◎ TP30 [EFF TBC - 4H] ⦶ DA REF (VR31) [EFF TBC - 2H] ☆ 4 V DC	1) Adjust the reference voltage as specified.
6	H. lock		◎ TP31 [EFF TBC - 3J] ⦶ H LOCK (L40) [EFF TBC - 3L] ☆ 4.5 V DC	1) Adjust the voltage as specified.
7	Y pedestal level	Oscilloscope (10 : 1, H-rate) NTSC: Y/C 358 color bars PAL: Y/C 443 color bars	◎ TP9 [EFF TBC - 2A] ⦶ SETUP (VR4) [EFF TBC - 6F] ☆ Pedestal level: flat	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period.  NO sync

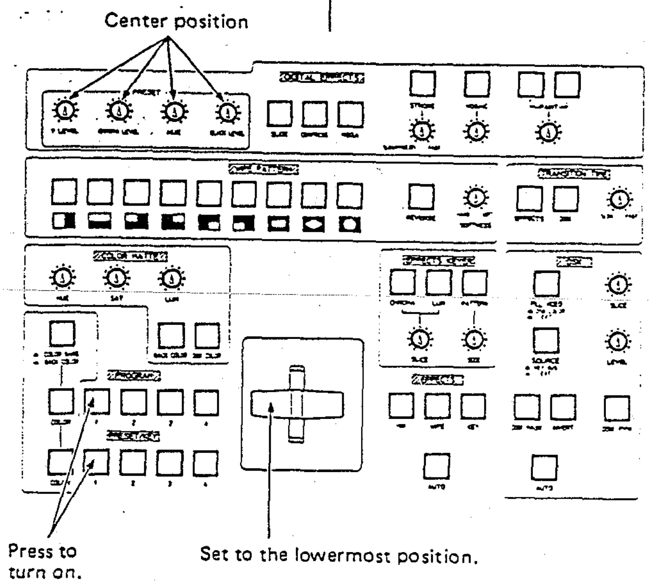
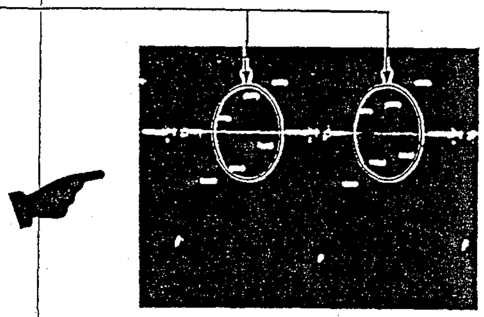
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
8	Chroma center level	Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [EFF TBC - 2C] Ⓣ R-Y PED (VR5) [EFF TBC - 9G] ☆ Flat in center of waveform • B-Y ◎ TP8 [EFF TBC - 4D] Ⓣ B-Y PED (VR6) [EFF TBC - 9F] ☆ Flat in center of waveform	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period.  
9	K factor	Oscilloscope (10 : 1, H-rate) 2T pulse (by test signal generator)	◎ PVW Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y EQ (VR18) [EFF TBC - 2E] ☆ Minimum distortion Magnify this part on the oscilloscope.  2T pulse	1) Supply 2T pulse to the COMPOSITE INPUT -2 connector of the rear panel. (Y/C ↔ COMP selector switch is set to Y/C as it is.) 2) Press the respective "2" button of the PROGRAM BUS and PRESET/KEY BUS. 3) Minimize distortion. 
		Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [EFF TBC - 2C] Ⓣ R-Y EQ (VR8) [EFF TBC - 1E] ☆ Minimum ringing • B-Y ◎ TP8 [EFF TBC - 4D] Ⓣ B-Y EQ (VR16) [EFF TBC - 3E] ☆ Minimum ringing	4) Press the respective "1" button of the PROGRAM BUS and PRESET/KEY BUS. 5) Minimize ringing. 

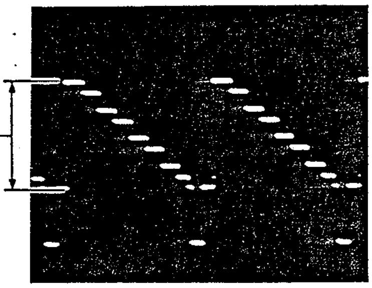
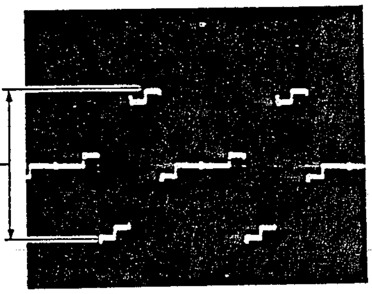
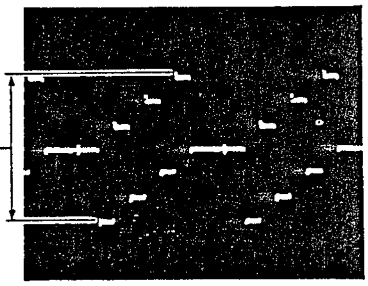
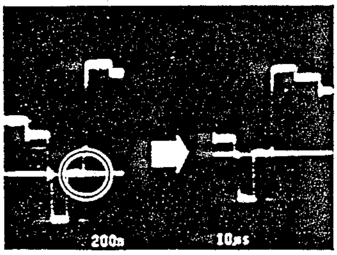
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
10	Y output level	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PVW Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BND conversion device] Ⓣ Y LEV (VR19) [EFF TBC - 3D] ☆ NTSC: 0.55 Vp-p PAL : 0.7 Vp-p	1) Adjust the signal level as specified. 
11	Carrier balance	Vectorscope Y/C color bars	◎ PVW COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C BAL (VR12) [EFF TBC - 1B] Ⓣ C BAL (VR13) [EFF TBC - 1B] Ⓣ C BAL (VR14) (PAL only) [EFF TBC - 2B] ☆ Minimum carrier leak	1) Connect the oscilloscope to the PVW COMPOSITE OUTPUT connector of the rear panel (with 75-ohm termination). 2) Turn VR12 and VR13 alternately to minimize carrier leaks both in the white and black portions. 
12	C output level	Vectorscope Y/C color bars	◎ PVW COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ PHASE (VR9) [EFF TBC - 3A] Ⓣ QUAD (VR17) [EFF TBC - 4A] Ⓣ R-Y LEV (VR10) [EFF TBC - 2D] Ⓣ C LEV (VR15) [EFF TBC - 1A]  — PAL —	1) Connect a vectorscope to the PVW COMPOSITE OUTPUT connector. 2) Set the vectorscope's GAIN control to CAL or 75% (preset) position. 3) Alternately adjust the VRs so that every spot (R, G, B, Mg, Cy, Yl) is positioned in the square point (⊞).  — NTSC —

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (ⓣ) Adjustment level (☆)	Adjustment procedure
13	H. phase	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PVW COMPOSITE OUTPUT (with 75 Ω termination) ⓣ H POS (VR30) [EFF TBC - 2K] ☆ NTSC : 9.4 μsec PAL : 10.5μsec	1) Connect the oscilloscope's probes to test points. 2) Adjust the period between falling portion of SYNC and rising portion of color bars. 

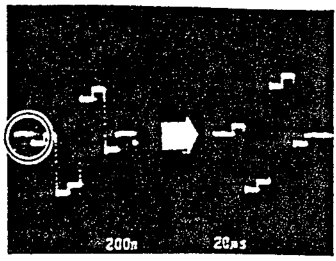
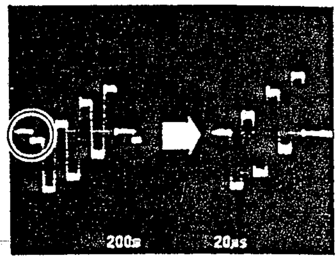
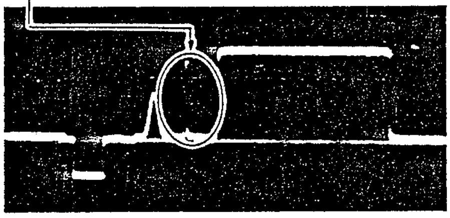
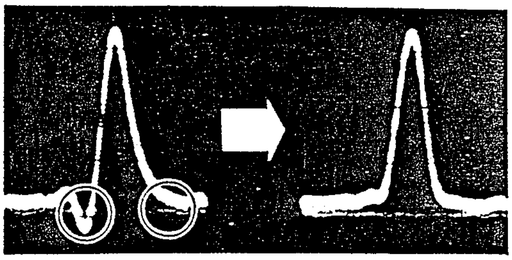
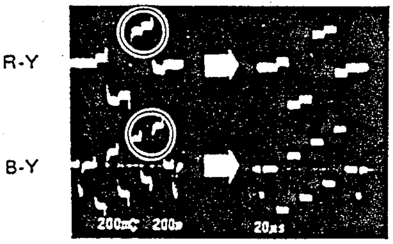
3.15 ADJUSTMENT OF TBC BOARD

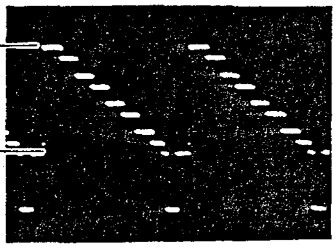
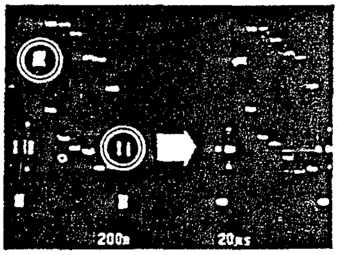
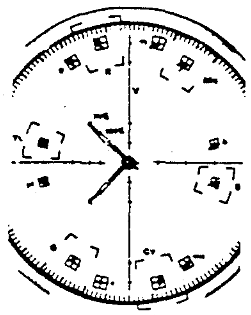
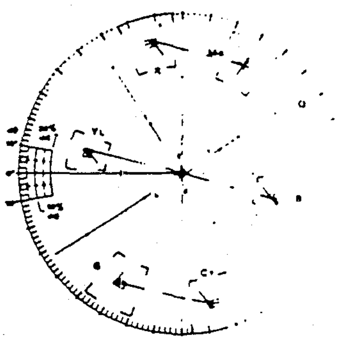
Note:
- For the following procedure, refer to "Adjustment Parts Location of TBC board" on page 3-10.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

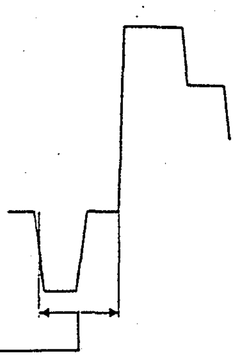
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation	NTSC: Y/C358 color bars PAL: Y/C443 color bars  Center position Press to turn on. Set to the lowermost position.	• Set the TBC board to the uppermost position, while set the EFF TBC board to the lowermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Turn off the AUTO FREEZE switch of the EFF TBC board. (This switch is located at the position of the address 11T.) 3) Input Y/C signal of the camera or remote control unit to the Y/C INPUT-1 connector of the KM-D600's rear panel. 4) Set buttons and controls as shown in the left figure. Note: Set all the ~~WIPE, MIX,~~ KEY, DSK and DIGITAL EFFECTs to OFF.
2	VCXO	Frequency counter	Ⓣ J2 [TBC - 10C] ☆ ON ◎ TP11 [TBC - 11A] Ⓣ VCXO (C40) [TBC - 9A] ☆ NTSC: 3.579545 MHz ± 20 Hz PAL : 4.433619 MHz ± 20 Hz Ⓣ J2 [TBC - 10C] ☆ OFF	1) Set the switch connector of the board J2 to ON. 2) Adjust the frequency as specified. 3) Set J2 to OFF.
3	Color phase	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ TP4 [TBC - 11G] Ⓣ HUE (VR2) [TBC - 8A] ☆ Waveform is the same in the two points.	1) Adjust waveform in an optional line to be the same as that of 1H before. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	Input level	Oscilloscope (10 : 1, H-rate) Y/C color bars	• Y level ◎ TP2 [TBC - 8H] Ⓣ Y AD LEV (VR3) [TBC - 6D] ☆ NTSC: 1.3 Vp-p (75% white level) PAL : 1.73 Vp-p (100% white level) • R-Y level ◎ TP3 [TBC - 10H] Ⓣ R-Y AD LEV (VR1) [TBC - 8B] ☆ 1.3 Vp-p • B-Y level ◎ TP4 [TBC - 11G] Ⓣ B-Y AD LEV (VR7) [TBC - 10E] ☆ 1.3 Vp-p	1) Adjust the respective signal level as specified.   
5	Reference voltage of D/A converter	Digital voltmeter	◎ TP30 [TBC - 5K] Ⓣ DA REF (VR31) [TBC - 4H] ☆ 4 V DC	1) Adjust the reference voltage as specified.
6	H. lock	Oscilloscope (10 : 1, H-rate) DC range	◎ TP31 [TBC - 5K] Ⓣ H LOCK (L40) [TBC - 4L] ☆ 4.5 V DC	1) Adjust the voltage as specified.
7	Y pedestal level	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ TP9 [TBC - 2A] Ⓣ SETUP (VR4) [TBC - 6E] ☆ Pedestal level: flat	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period. 

41

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
8	Chroma center level	Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [TBC - 2C] Ⓣ R-Y PED (VR5) [TBC - 9G] ☆ Flat in center of waveform • B-Y ◎ TP8 [TBC - 4D] Ⓣ B-Y PED (VR6) [TBC - 9F] ☆ Flat in center of waveform	1) Adjust waveform so that its back porch portion becomes flat in the H. blanking period.  
9	K factor	Oscilloscope (10 : 1, H-rate) 2T pulse (by test signal generator) Magnify this part on the oscilloscope.  2T pulse	◎ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y EQ (VR18) [TBC - 2E] ☆ Minimum distortion	1) Supply 2T pulse to the COMPOSITE INPUT -2 connector of the rear panel. (Y/C ↔ COMP selector switch is set to Y/C as it is.) 2) Press the respective "2" button of the PROGRAM BUS and PRESET/KEY BUS. 3) Minimize distortion. 
		Oscilloscope (10 : 1, H-rate) Y/C color bars	• R-Y ◎ TP6 [TBC - 2C] Ⓣ R-Y EQ (VR8) [TBC - 1E] ☆ Minimum ringing • B-Y ◎ TP8 [TBC - 4D] Ⓣ B-Y EQ (VR16) [TBC - 3E] ☆ Minimum ringing	4) Press the respective "1" button of the PROGRAM BUS and PRESET/KEY BUS. 5) Minimize ringing. 

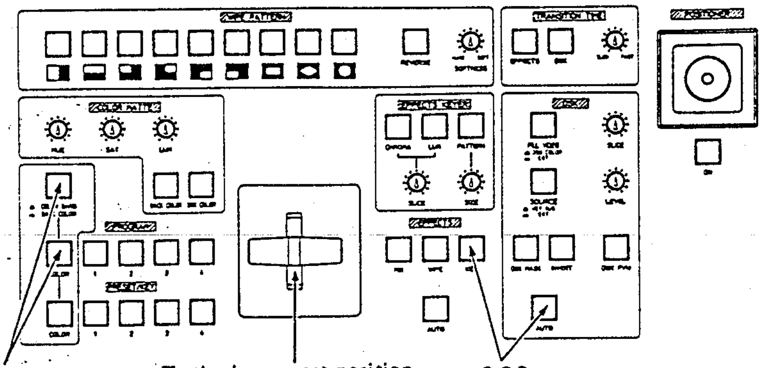
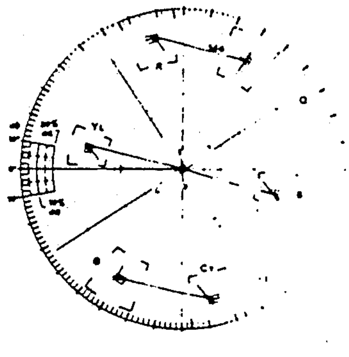
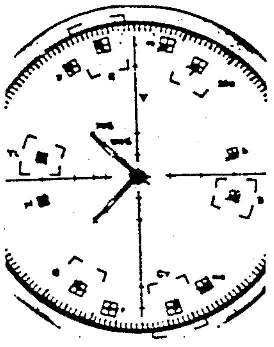
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
10	Y output level	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BND conversion device] Ⓣ Y LEV (VR19) [TBC - 3D] ☆ NTSC: 0.55 Vp-p PAL : 0.7 Vp-p	1) Adjust the signal level as specified. 
11	Carrier balance	Vectorscope Y/C color bars	◎ PGM COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C BAL (VR12) [TBC - 1B] Ⓣ C BAL (VR13) [TBC - 1B] Ⓣ C BAL (VR14) (PAL only) [TBC - 2B] ☆ Minimum carrier leak	1) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector of the rear panel (with 75-ohm termination). 2) Turn VR12 and VR13 alternately to minimize carrier leaks both in the white and black portions. 
12	C output level	Vectorscope Y/C color bars	◎ PGM COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ PHASE (VR9) [TBC - 3A] Ⓣ QUAD (VR17) [TBC - 4B] Ⓣ R-Y LEV (VR10) [TBC - 2D] Ⓣ C LEV (VR15) [TBC - 1A]  – PAL –	1) Connect a vectorscope to the PVW COMPOSITE OUTPUT connector. 2) Set the vectorscope's GAIN control to CAL or 75% (preset) position. 3) Alternately adjust the VRs so that every spot (R, G, B, Mg, Cy, Yl) is positioned in the respective point (⊞).  – NTSC –

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
13	H. phase	Oscilloscope (10 : 1, H-rate) Y/C color bars	◎ PGM COMPOSITE OUTPUT : (with 75 Ω termination) Ⓣ H POS (VR30) [TBC - 3H] ☆ NTSC : 9.4 μsec PAL : 10.5usec	1) Connect the oscilloscope's probes to test points. 2) Adjust the period between falling portion of SYNC and rising portion of color bars. 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

RE-ADJUSTMENT OF BUILT-IN COLOR BAR SIGNAL

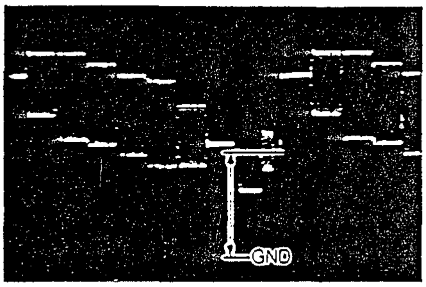
Note:Following adjustment should be readjusted after all adjustment from item number 3.4 to 3.15 are done.

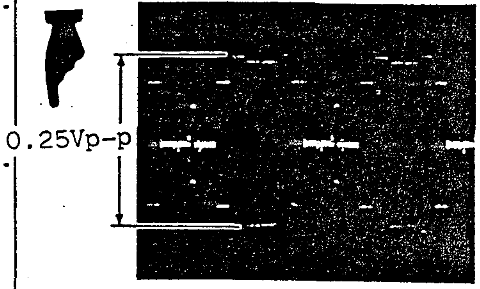
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the VIDEO board to the uppermost position.	1) Set KM-D600 into the D600 mode. 2) Connect the oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel (with 75-ohm terminator). 3) Set the buttons and controls on the control panel as shown below.  Press to turn on. To the lowermost position. Off
2	Color phase	Vectorscope	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] Ⓣ QUADRATURE (R239) [VIDEO - 8H] Ⓣ R-Y GAIN (R258) [VIDEO - 8F] Ⓣ BURST LEV (R262) [VIDEO - 8G] Ⓣ BURST PHASE (R259) [VIDEO -8F]  — NTSC —	1) Connect a vectorscope to the PGM COMPOSITE OUTPUT connector. 2) Set the GAIN control of the vectorscope to "CAL" or "75%" (preset position). 3) Adjust VRs to position every spot (R, G, B, Mg, Cy, Yl) in the respective point (⊞) on the vectorscope screen.  — PAL —

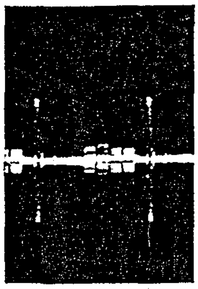
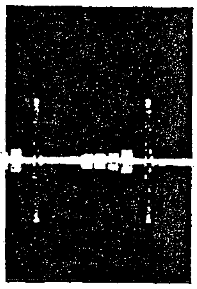
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

3.16-N ADJUSTMENT OF Y/C SEPARATOR (U version)

Note:
- For the following procedure, refer to "Adjustment Parts Location of Y/C SEPA board" on page 3-7.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

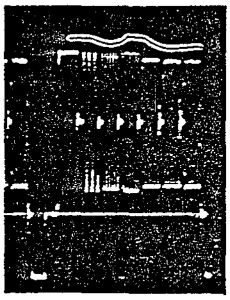
1	Preparation	Composite color bars	• Set the Y/C SEPA board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Input the color bars signal to the COMPOSITE INPUT-2 connector of the rear panel. (Set the Y/C ↔ COMP selector switch to the COMP position.) 3) Press the respective "2" buttons of the PROGRAOM BUS and PRESET/KEY BUS.
2	Bias	Oscilloscope (10 : 1, H-rate) DC range	PROGRAM BUS (Proceed in the following order.) ◎ TP1 [Y/C SEPA - 3P] Ⓣ DC1 (VR1) [Y/C SEPA - 3P] ☆ 5.5 V DC ◎ TP2 [Y/C SEPA - 3P] Ⓣ BIAS1 (VR2)[Y/C SEPA - 3P] ☆ 3 V DC ◎ TP3 [Y/C SEPA - 5O] Ⓣ DC2 (VR4) [Y/C SEPA - 5P] ☆ 5.5 V DC ◎ TP4 [Y/C SEPA - 5P] Ⓣ BIAS2 (VR5) [Y/C SEPA - 5O] ☆ 3 V DC PRESET/KEY BUS (Proceed in the following order.) ◎ TP11 [Y/C SEPA - 3G] Ⓣ DC3(VR101)[Y/C SEPA - 3H] ☆ 5.5 V DC ◎ TP12 [Y/C SEPA - 3H] Ⓣ BIAS3 (VR102) [Y/C SEPA - 3G] ☆ 3 V DC ◎ TP13 [Y/C SEPA - 5G] Ⓣ DC4(VR104)[Y/C SEPA - 5G] ☆ 5.5 V DC ◎ TP14 [Y/C SEPA - 5G] Ⓣ BIAS4 (VR104) [Y/C SEPA - 5G] ☆ 3 V DC	1) Adjust waveform so that the pedestal level becomes as specified. (Adjust in the order of DC1, BIAS1, DC2 and BIAS2.) 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	V. correlation input level	Oscilloscope (10 : 1, H-rate) Composite color bars	PROGRAM BUS ◎ TP5 [Y/C SEPA - 9R] Ⓣ C LEV 1 (VR7) [Y/C SEPA - 8R] ☆ 0.25Vp-p ◎ TP6 [Y/C SEPA - 9P] Ⓣ C LEV 2 (VR8) [Y/C SEPA - 8P] ☆ 0.25Vp-p ◎ TP7 [Y/C SEPA - 9P] Ⓣ C LEV 3 (VR9) [Y/C SEPA - 8O] ☆ 0.25Vp-p PRESET/KEY BUS ◎ TP15 [Y/C SEPA - 9H] Ⓣ C LEV 4 (VR107) [Y/C SEPA - 8H] ☆ 0.25Vp-p ◎ TP16 [Y/C SEPA - 9H] Ⓣ C LEV 5 (VR108) [Y/C SEPA - 8G] ☆ 0.25Vp-p ◎ TP17 [Y/C SEPA - 9G] Ⓣ C LEV 6 (VR109) [Y/C SEPA - 8F] ☆ 0.25Vp-p	1) Adjust chroma level as specified. 

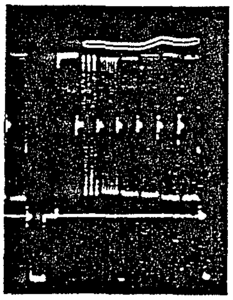
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	**V. correlation input phase**	Composite multi-burst	PROGRAM BUS ◎ TP8 [Y/C SEPA - 9N] Ⓣ 1H PHASE 1 (VR3) [Y/C SEPA - 5R] Ⓣ 2H PHASE 1 (VR6) [Y/C SEPA - 7P] ☆ Minimum carrier leak (4 MHz) PRESET/KEY BUS ◎ TP18 [Y/C SEPA - 9F] Ⓣ 1H PHASE 2 (VR103) [Y/C SEPA - 5H] Ⓣ 2H PHASE 2 (VR106) [Y/C SEPA - 7G] ☆ Minimum carrier leak (4 MHz)	1) Input multi-burst signal for color bars signal. 2) Alternately turn VRs to minimize crosstalk of V. correlation input as well as shape the waveform the best.  NG  OK

Reference

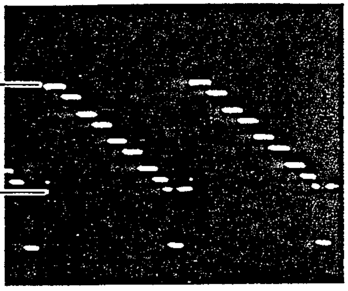
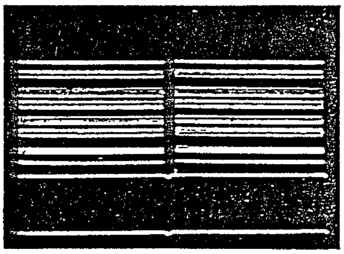
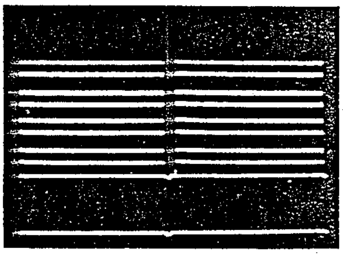
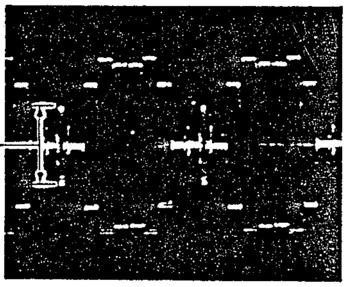
To set a judging standard of the quality of V. correlation in adjustment, PGM output can be utilized. If adjustment is improperly done, uneven waveform is observed as shown below, while, if it is proper, the waveform is even and slopes gently up rightwards.



Improper adjustment

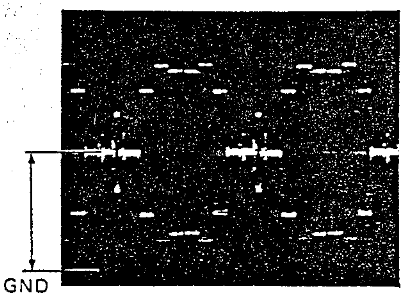


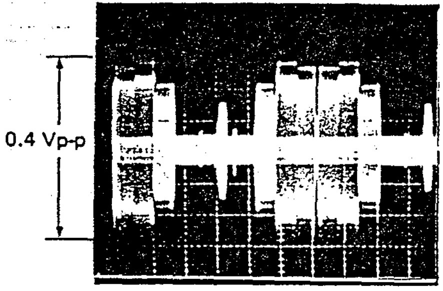
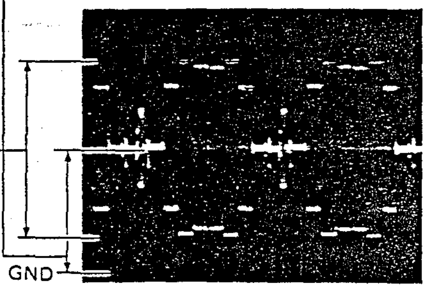
Proper adjustment

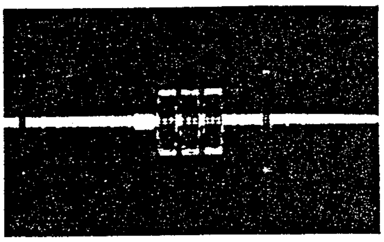
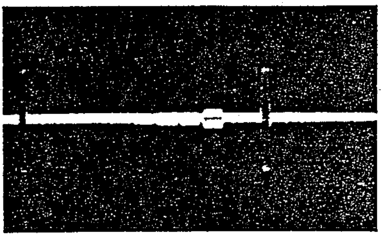
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
5	Y output level	Oscilloscope (10 : 1, H-rate) Composite color bars	PROGRAM BUS ☆ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y LEV 1 (VR11) [Y/C SEPA - 10O] ☆ 0.55 Vp-p (75% Y level)	1) Input color bars signal. 2) Adjust the level of Y signal as specified.  H-rate
		(H-rate)	PRESET/KEY BUS ◎ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y LEV 2 (VR111) [Y/C SEPA - 10G] ☆ 0.55 Vp-p (75% Y level)	
		(V-rate)	PROGRAM BUS ◎ PRM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ COMB DELAY 1 (VR10) [Y/C SEPA - 10R] Ⓣ COMB LEV 1 (VR12) [Y/C SEPA - 10O] ☆ Minimum chroma component	3) Alternately turn VRs to minimize residual chroma components.  NG
			PRESET/KEY BUS ☆ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ COMB DELAY 2 (VR110) [Y/C SEPA - 10 I] Ⓣ COMB LEV 2 (VR112) [Y/C SEPA - 10F] ☆ Minimum chroma component	 OK
6	C output level	Oscilloscope (10 : 1, H-rate)	PROGRAM BUS ◎ TP52 [Y/C SEPA - 10K] Ⓣ C GAIN 1 (VR500) [Y/C SEPA - 9M] ☆ 0.286 Vp-p (burst level)	1) Adjust chroma level as specified. 
			PRESET/KEY BUS ◎ TP53 [Y/C SEPA - 10C] Ⓣ C GAIN 2 (VR501) [Y/C SEPA - 9D] ☆ 0.286 Vp-p (burst level)	

3.16-P ADJUSTMENT OF Y/C SEPARATOR (PAL version)

Note: • For the following procedure, refer to "Adjustment Parts Location of Y/C SEPA board" on page 3-7.
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

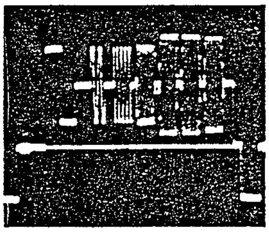
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation	Composite color bars	• Set the Y/C SEPA board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Input the color bars signal to the COMPOSITE INPUT-2 connector of the rear panel. (Set the Y/C ↔ COMP selector switch to the COMP position.) 3) Press the respective "2" buttons of the PROGRAOM BUS and PRESET/KEY BUS.
2	Bias	Oscilloscope (10 : 1, H-rate) DC range	PROGRAM BUS (Proceed in the following order.) ◎ TP21 [Y/C SEPA - 4K] Ⓣ DC1 (VR201) [Y/C SEPA- 3L] ☆ 5.5 V DC ◎ TP27 [Y/C SEPA - 4L] Ⓣ BIAS1 (VR202) [Y/C SEPA - 3K] ☆ 3 V DC ◎ TP22 [Y/C SEPA - 6K] Ⓣ DC2 (VR204) [Y/C SEPA- 5L] ☆ 5.5 V DC PRESET/KEY BUS (Proceed in the following order.) ◎ TP31 [Y/C SEPA - 4C] Ⓣ DC3 (VR301) [Y/C SEPA- 3C] ☆ 5.5 V DC ◎ TP37 [Y/C SEPA - 6C] Ⓣ BIAS3 (VR302) [Y/C SEPA - 4D] ☆ 3 V DC ◎ TP32 [Y/C SEPA - 5D] Ⓣ DC4 (VR304) [Y/C SEPA-5C] ☆ 5.5 V DC	1) Adjust waveform so that the pedestal level becomes as specified. (Adjust in the order of DC1, BIAS1, DC2 and BIAS2.) 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	**1H delayed signal level**	Oscilloscope (10 : 1, H-rate) Composite color bars	PROGRAM BUS ◎ TP22 [Y/C SEPA - 6K] Ⓣ 1H LEV1 (VR203) [Y/C SEPA - 4M] ☆ 0.4 Vp-p PRESET/KEY BUS ◎ TP32 [Y/C SEPA - 6C] Ⓣ 1H LEV2 (VR303) [Y/C SEPA - 4D] ☆ 0.4 Vp-p	1) Adjust chroma level as specified. 
4	2H delayed signal level		PROGRAM BUS ◎ TP23 [Y/C SEPA - 5M] Ⓣ BIAS2 (VR205) [Y/C SEPA - 5K] ☆ Pedestal level : 5 V DC Ⓣ 2H LEV1 (VR206) [Y/C SEPA - 6M] ☆ Chroma level : 0.58 Vp-p PRESET/KEY BUS ◎ TP33 [Y/C SEPA - 5D] Ⓣ BIAS4 (VR305) [Y/C SEPA - 5C] ☆ Pedestal level : 5 V DC Ⓣ 2H LEV2 (VR306) [Y/C SEPA - 6D] ☆ Chroma level : 0.58 Vp-p	1) Adjust pedestal level and chroma level as specified.  DC range

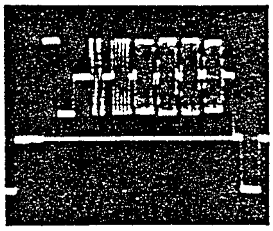
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
5	V.correlation input phase and level	Composite multi-burst	PROGRAM BUS ◎ TP25 [Y/C SEPA - 8L] Ⓣ 0H PHASE1 (VR211) [Y/C SEPA - 2K] Ⓣ 2H PHASE1 (VR207) [Y/C SEPA - 7M] Ⓣ COMB BAL1 (VR208) [Y/C SEPA - 8L] 2H PHASE1 (VR207) and COMB BAL1 (VR208) need repeated adjustments. In this adjustment, minimize crosstalk by turning 2H LEV1 (VR206). → VR207 → VR206 → VR208 → PRESET/KEY BUS ◎ TP35 [Y/C SEPA - 8D] Ⓣ 0H PHASE2 (VR311) [Y/C SEPA - 2C] Ⓣ 2H PHASE2 (VR307) [Y/C SEPA - 7E] Ⓣ COMB BAL2 (VR308) [Y/C SEPA - 8D] 2H PHASE2 (VR307) and COMB BAL2 (VR308) need repeated adjustments. In this adjustment, minimize crosstalk by turning 2H LEV2 (VR306). → VR307 → VR306 → VR308 →	1) Input multi-burst signal for color bars signal. 2) Alternately turn VRs to minimize crosstalk of V. correlation input as well as shape the waveform the best.  NG  OK

Reference

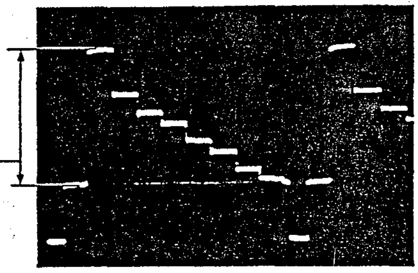
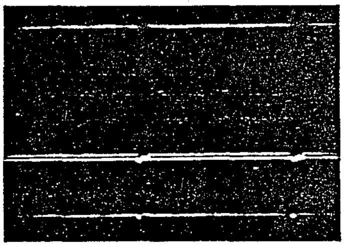
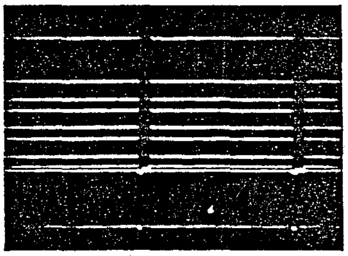
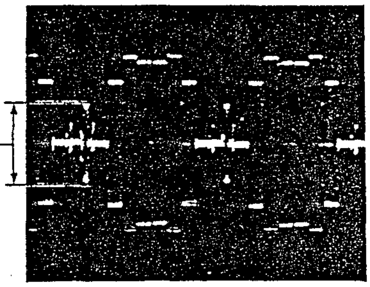
To set a judging standard of the quality of V. correlation in adjustment, PGM output can be utilized. If adjustment is improperly done, uneven waveform is observed as shown below, while, if it is proper, the waveform is even and slopes gently up rightwards.



Improper adjustment

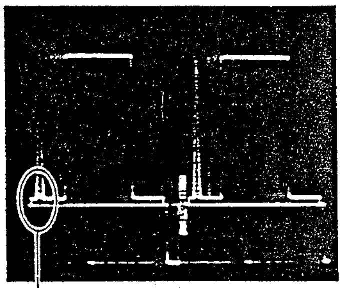
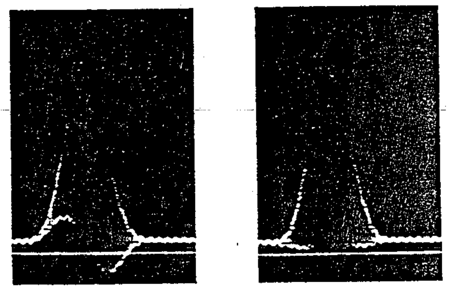
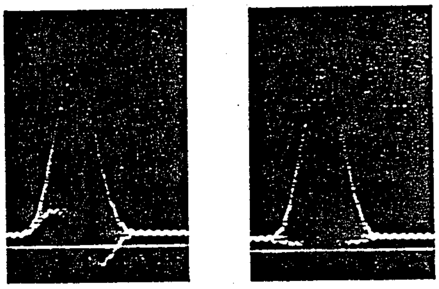


Proper adjustment

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
5	Y output level	Oscilloscope (10 : 1, H-rate) Composite color bars (H-rate)	PROGRAM BUS ☆ PGM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y LEV1 (VR210) [Y/C SEPA - 8N]] ☆ 0.7 Vp-p (Y level) - - - - - - - - - - - - - - - - - - PRESET/KEY BUS ◎ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ Y LEV2 (VR310) [Y/C SEPA - 8E] ☆ 0.7 Vp-p (Y level)	1) Input color bars signal. 2) Adjust the level of Y signal as specified.  H-rate
		(V-rate)	PROGRAM BUS ◎ PRM Y/C OUTPUT-1 Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ COMB DELAY1 (VR209) [Y/C SEPA - 7N] Ⓣ C LEV1 (VR212) [Y/C SEPA - 8N] ☆ Minimum chroma component - - - - - - - - - - - - - - - - - - PRESET/KEY BUS ☆ PVW Y/C OUTPUT Y OUTPUT (with 75-ohm termination) [7-pin to BNC conversion device] Ⓣ COMB DELAY2 (VR309) [Y/C SEPA - 7E] Ⓣ COMB LEV2 (VR312) [Y/C SEPA - 8E] ☆ Minimum chroma component	3) Alternately turn VRs to minimize residual chroma components.  NG  OK
6	C output level	Oscilloscope (10 : 1, H-rate)	PROGRAM BUS ◎ TP52 [Y/C SEPA - 10K] Ⓣ C GAIN 1 (VR500) [Y/C SEPA - 9M] ☆ 0.3 Vp-p (burst level) - - - - - - - - - - - - - - - - - - PRESET/KEY BUS ◎ TP53 [Y/C SEPA - 10C] Ⓣ C GAIN 2 (VR501) [Y/C SEPA - 9D] ☆ 0.3 Vp-p (burst level)	1) Adjust chroma level as specified. 

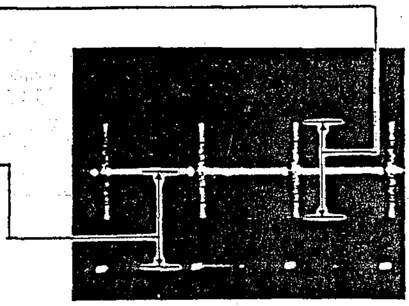
3.17 ADJUSTMENT OF Y/C TIMING

Note:
- For the following procedure, refer to "Adjustment Parts Location of EFF TBC board" on page 3-9 and "TBC board" on page 3-10.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment part is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	PRESET/ KEY bus output Y/C timing	Composite 2T pulse  Magnify this part on the oscilloscope. Oscilloscope (10 : 1, H-rate) or Waveform monitor	• Set the EFF TBC board to the uppermost position. ◎ PVW COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C POS (S1) [EFF TBC - 10U] ☆ Minimum distortion	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode. (Refer to Section 2.5.) 2) Input 2T pulse to the COMPOSITE INPUT-2 connector of the rear panel. (Set the Y/C ↔ COMP selector switch to the COMP position.) 3) Press the respective "2" buttons of the PROGRAM BUS and PRESET/KEY BUS. 4) Minimize distortion.  NG OK
2	PROGRAM bus output Y/C timing		• Replace the EFF TBC board with the TBC board. TBC : Uppermost EFF TBC : Lowermost ☆ PGM COMPOSITE OUTPUT (with 75-ohm termination) [Rear panel] Ⓣ C POS (S1) [TBC - 10M] ☆ Minimum distortion	1) Press the respective "2" buttons of the PROGRAUM BUS and PRESET/KEY BUS. 2) Minimize distortion.  NG OK

3.18 ADJUSTMENT OF B.B. (BLACK BURST) SIGNAL

Note:
- For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

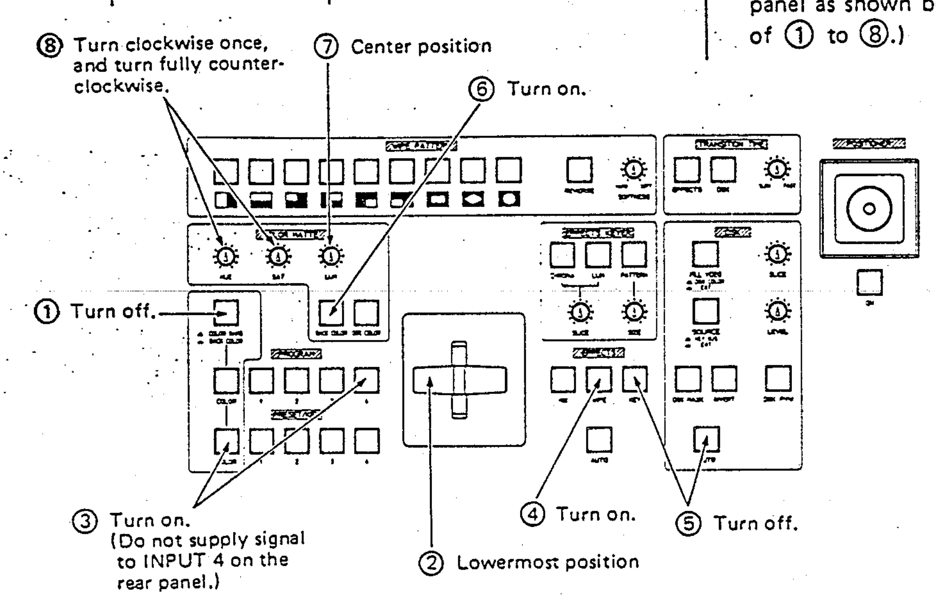
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	B.B. signal		• Set the KEY board to the uppermost position. ◎ B.B OUT PUT (with 75-ohm terminator) [Rear panel] Ⓣ BURST GAIN (R487) [KEY - 7S] ☆ Burst level NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p Ⓣ SYNC GAIN (R489) [KEY - 8S] ☆ SYNC level: NTSC; 0.286 Vp-p PAL ; 0.3 Vp-p	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode (see Section 2.5). 2) Adjust to obtain specified values (with 75-ohm terminator). Note: Adjust in the order of burst level (R487) first and then sync. level (R489). 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure

3.19 ADJUSTMENT OF WIPE PATTERN WAVEFORM

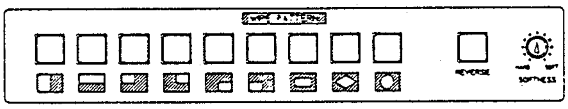
Note: • For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the KEY board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode (see Section 2.5). 2) Observe PGM output (or COMPOSITE output, or Y/C output) by a TV monitor. 3) Set the buttons and controls on the control panel as shown below. (Proceed in the order of ① to ⑧.)

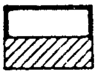
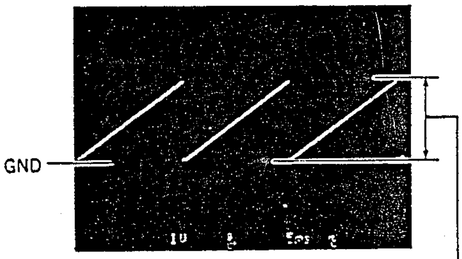


⑧ Turn clockwise once, and turn fully counter-clockwise.
⑦ Center position
⑥ Turn on.
① Turn off.
③ Turn on. (Do not supply signal to INPUT 4 on the rear panel.)
④ Turn on.
⑤ Turn off.
② Lowermost position
WIPE PATTERN
TRANSITION TIME
REVERSE
SOFTNESS

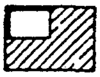
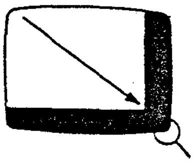
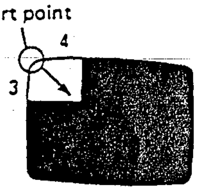
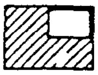
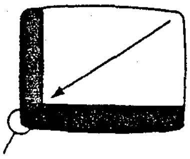
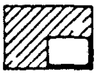
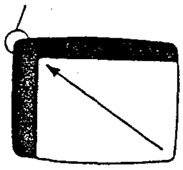
• Select a wipe pattern corresponding to that shown in this colum with the WIPE PATTERN button.

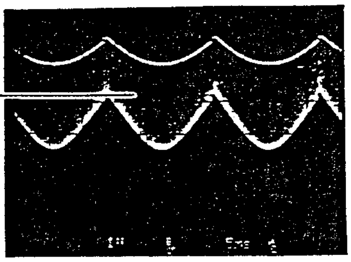
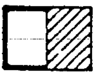
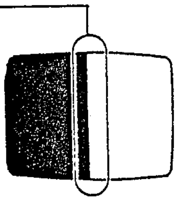


WIPE PATTERN
REVERSE
SOFTNESS

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
2	Sawtooth waveform	 Oscilloscope (10 : 1, V-rate)	◎ TP2 [KEY - 6F] ⦶ V. TOP LEV (R58) [KEY - 1E] ☆ DC level = GND level	1) Adjust the DC level of sawtooth waveform to be GND level.  (5 msec/div)
			⦶ V. SAW LEV (R77) [KEY - 3D] ☆ Peak level: 2.5 V	2) Adjust the peak level of the sawtooth waveform as specified.

42

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
3	Corner wipe		◎ PROGRAM MONITOR Ⓣ H. SAW LEV (R26) [KEY - 3A] ☆ Coincide end positions of H and V wipe operations	1) Observing the program monitor, move the FADER lever and take note of the ending position of the wipe operation. (Bottom right) 2) Adjust R26 so that horizontal and vertical wipe operations end at the same time.  End position of wipe operations
			Ⓣ V. TOP LEV (R58) [KEY - 1E] ☆ H : V = 4 : 3	3) In the same manner as the above step 1), move the FADER lever and take note of the beginning position of wipe operation. 4) Adjust R58 so that H : V is 4 : 3. 
			Ⓣ H. INV. DC (R49) [KEY - 5A] ☆ Coincide end positions of H and V wipe operations.	5) Observing the program monitor, move the FADER lever and take note of the end position of wipe operation. (Bottom left) 6) Adjust R49 so that horizontal and vertical wipe operations end at the same time.  End position of wipe operations
			Ⓣ V. INV. DC (R97) [KEY - 5C] ☆ Coincide end positions of H and V wipe operations.	7) Observing the program monitor, move the FADER lever and take note of the ending position of wipe operation. (Top left) 8) Adjust R97 so that horizontal and vertical wipe operations end at the same time. End position of wipe operations 

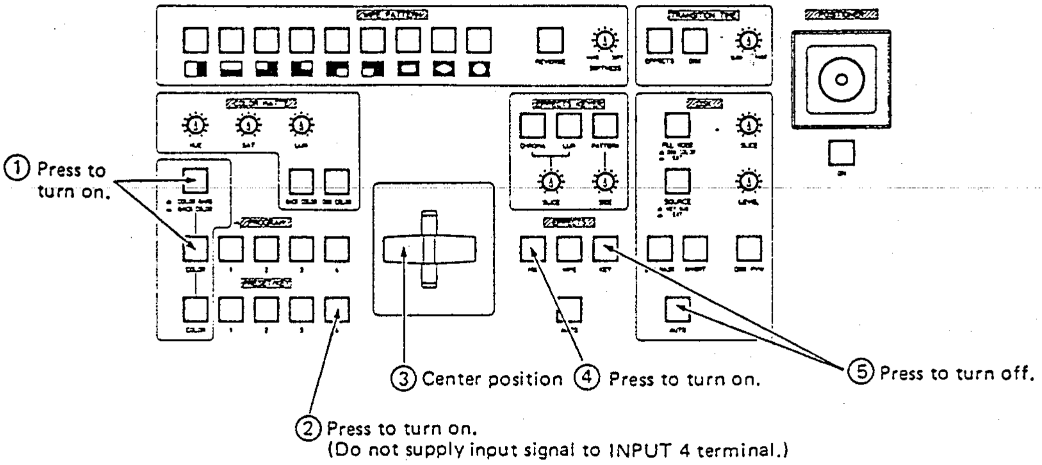
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⌽) Adjustment level (☆)	Adjustment procedure
			⌽ CONE INV DC (R121) [KEY - 8B] ☆ Adjust DC level to +2.0 V. Coinside this point to +2.0V DC	8) Press the REVERSE button again to turn it off. 9) Adjust the DC level of H/V mixed waveform (V. period). 
6	Softness		◎ PROGRAM MONITOR ⌽ BL. DC (R182) [KEY - 9E] ☆ Center of wipe border is stable.	1) Set the FADER lever to the center position. 2) Turn the SOFTNESS control clockwise and counterclockwise and take note of the border of the wipe pattern. 3) Adjust R182 to stabilize the center of the wipe's border in the horizontal direction. 

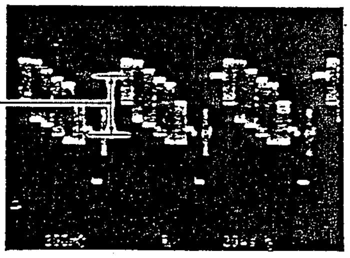
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure

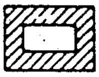
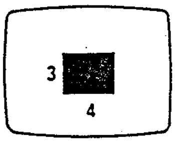
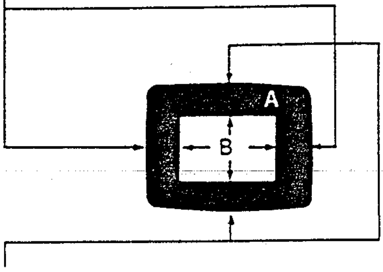
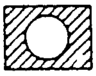
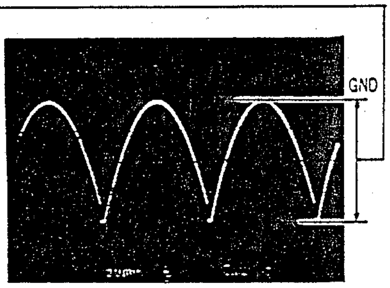
3.20 ADJUSTMENT OF MIX DC VOLTAGE

Note: • For the following procedure, refer to "Adjustment Parts Location of KEY board" on page 3-6.
• Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards.)

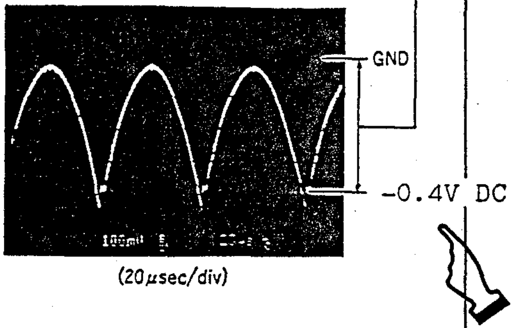
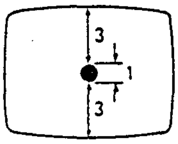
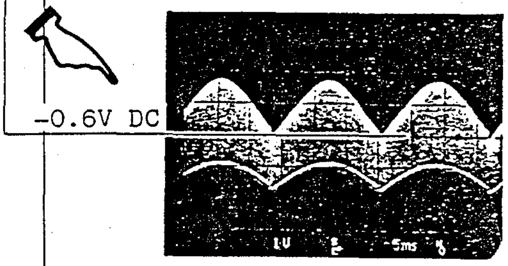
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the KEY board to the uppermost position.	1) If KM-D600 is set to the 1600 mode, return it to the D600 mode (see Section 2.5). 2) Connect an oscilloscope to the PGM COMPOSITE OUTPUT connector on the rear panel. 3) Set the buttons and controls on the control panel as shown below.



No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure
2	DC level	Oscilloscope (10 : 1, H-rate)	◎ PGM COMPOSITE OUTPUT (with 75-ohm terminator) [Rear panel] ① MIX DC (R213) [KEY - 7G] ☆ Y signal level NTSC; 0.275 Vp-p PAL; 0.35 Vp-p ① KEY INV DC (R352) [KEY - 9K] ☆ Y signal level NTSC; 0.275 Vp-p PAL; 0.35 Vp-p	1) Adjust Y signal level.  2) Press the KEY button of the EFFECTS section to turn it on. 3) While observing TP35's logic level on the other channel of the oscilloscope, set the FADER lever to the uppermost position. 4) When the lever is set to the uppermost position, confirm that the logic level is 0 V DC. If not, set the lever to the lowermost position and check it again. 5) Set the FADER lever to the center position. 6) Adjust Y signal level as specified.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
4	Window wipe		◎ PROGRAM MONITOR Ⓣ H. TOP LEV (R30) [KEY · 4D] ☆ H : V = 4 : 3	1) Observing the program monitor, move the FADER lever to reduce the center square. 2) Adjust R30 so that H : V is 4 : 3. 
			Ⓣ H. TRI LEV (R24) [KEY · 4A] ☆ Equal width in right and left	3) Move the FADER lever and stop it just before end of wipe operation. 4) Adjust to equalize widths of right and left margins. 
			Ⓣ V. TRI LEV (R75) [KEY · 3D] ☆ Equal width in upper and lower margins.	5) Adjust to equalize widths of upper and lower margins.
5	Round wipe	 Oscilloscope (10 : 1, V-rate)	◎ TP5 [KEY · 5E] Ⓣ V. PARA LEV (R86) [KEY · 5E] ☆ DC level: –0.2 V	1) Adjust the DC level of parabolic waveform (V. period) as specified.  (5 msec/div)
			Ⓣ CONE BIAS (R102) [KEY · 7A] ☆ Full clockwise position	2) Turn R102 fully clockwise.

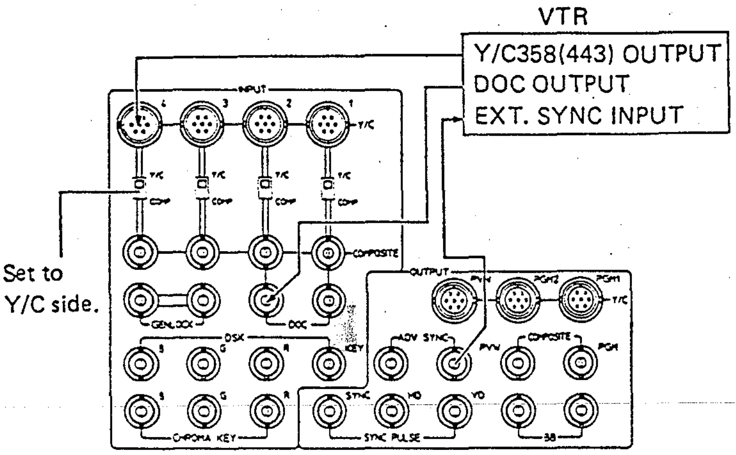
67

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure
		Oscilloscope (10 : 1, H-rate)	◎ TP4 [KEY - 7A] ⦶ H. PARA LEV (R38) [KEY - 4C] ☆ DC level: –0.4 V	3) Adjust the DC level of parabolic waveform (H. period) as specified.  (20μsec/div)
			◎ PROGRAM MONITOR	4) Move the FADER lever to set the size of the wipe pattern to the following ratio. 
			⦶ H. PARA ADJ (R37) [KEY - 3A] ⦶ V. PARA ADJ (R84) [KEY - 3E] ☆ Perfectly round pattern	5) Alternately adjust VRs to make the pattern perfectly round.
		Oscilloscope (10 : 1, V-rate)	◎ TP3 [KEY - 11D] ⦶ CONE DC (R118) [KEY - 7B] ☆ Adjust DC level to –0.6 V. Coinside this point to –0.6V DC·	6) Press the REVERSE button to make it illuminate. 7) Adjust the DC level of H/V mixed waveform (V. period). 

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⦶) Adjustment level (☆)	Adjustment procedure

3.21 CONFIRMATION OF DOC (DROPOUT COMPENSATION) CIRCUIT

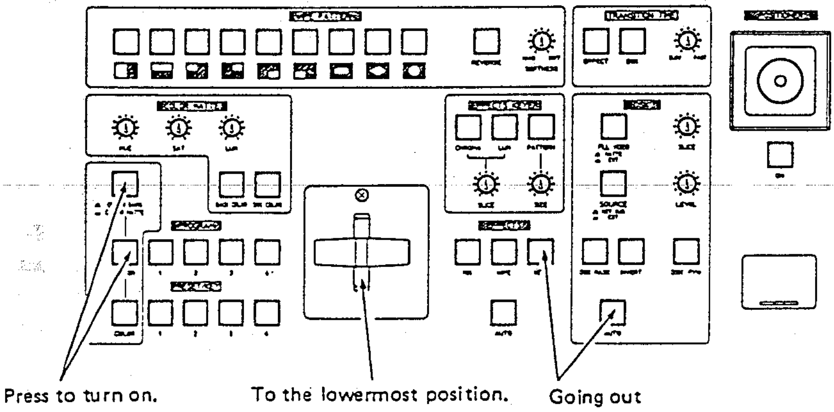
Note: For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3-5.
Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts is located in. (The section numbers are shown in the real boards).

1	DOC circuit  VTR Y/C358(443) OUTPUT DOC OUTPUT EXT. SYNC INPUT INPUT 4 3 2 1 Y/C COMP COMPOSITE GENLOCK DOC DSK S G R KEY CHROMA KEY OUTPUT PVW PGM2 PGM1 ADV SYNC PGM SYNC HD VD SYNC PULSE 3B Set to Y/C side.	Oscilloscope (10 : 1, H/V-rate)	◎ TP28 [VIDEO · 10L] ◎ TP29 [VIDEO · 8L]	1) Connect a VTR with KM-D600 as shown on the left. 2) Press respective "1" buttons of the PROGRAM BUS and PRESET/KEY bus. 3) Play a tape containing dropout in signal. 4) Confirm there is pulse generated. Note: Condition of pulse generation differs by the state of the tape and amount of dropout. The PGM DOC SENSE (R405) and PST DOC SENSE (R441) are set to the respective mechanical center positions at shipment. Although sensitivity of the DOC circuit can be changed by turning them, do not disturb these VRs unless it needs adjustment.

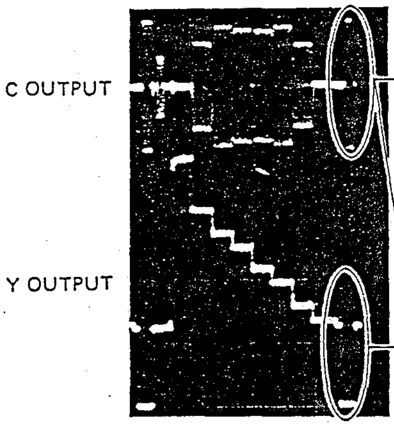
62

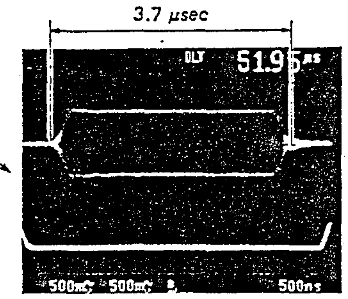
3.22 Y/C924 SIGNAL ADJUSTMENT (for PAL version)

Note:
- For the following procedure, refer to "Adjustment Parts Location of VIDEO board" on page 3–5
- Symbol (or word) and code in square brackets indicate the board name and the diagram's section where the adjustment parts are located in. (The section numbers are shown in the real boards.)

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
1	Preparation		• Set the VIDEO board to the uppermost position.	1) Connect a 7-pin to BNC conversion device to the PVW Y/C OUTPUT connector on the rear panel. 2) Set the buttons and controls on the control panel as shown below. 3) If connectors J1 and J2 are set to "443" side, reset them to "924" side.  Press to turn on. To the lowermost position. Going out
2	5.36 MHz adjustment	Frequency counter	Ⓣ 5.36 LEV (R372) [VIDEO - 2L] ☆ Mechanical center position ◎ CF1 Upper side [VIDEO - 2L] Ⓣ 5.36 ADJ (C332) [VIDEO - 1J] ☆ 5.357446 MHz	1) Set R372 to the respective mechanical center positions. 2) Adjust frequency to meet the specifications.
3	Pilot burst adjustment	Oscilloscope (10 : 1, H-rate)	◎ Y OUT (7-pin to BNC conversion connector) (with 75-ohm terminator) ◎ C OUTPUT (7-pin to BNC conversion connector) (with 75-ohm terminator) Ⓣ P. WID (R283) [VIDEO - 4M] ☆ 3.7 μsec width	• Connect 7-pin to BNC conversion connector to Y/C OUTPUT of the rear panel. 1) Connect A ch. of the oscilloscope to Y OUTPUT. 2) Connect B ch. of the oscilloscope to C OUTPUT. 3) Adjust so that PILOT BURST width of C signal becomes specified value.

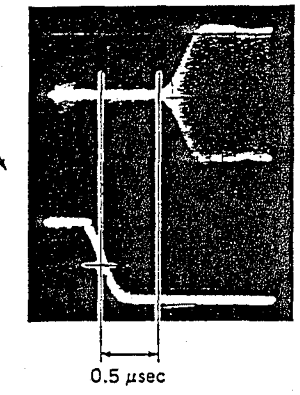
No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (⊙) Adjustment level (☆)	Adjustment procedure





4) Adjust so that start point of PILOT BURST becomes specified value.

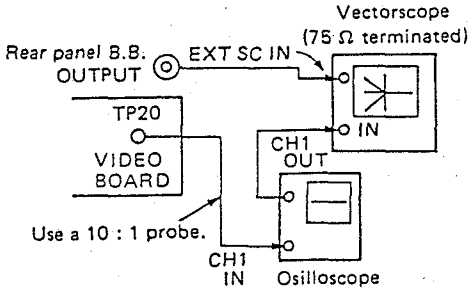
⊙ P. POS (R281) [VIDEO - 4M]
☆ 0.5 µsec from falling portion of H-sync of Y signal.



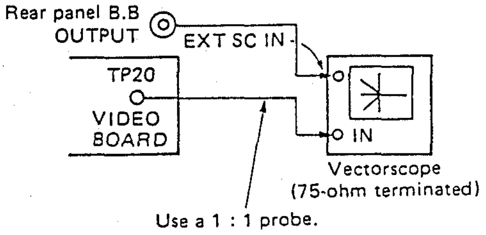
- In case a vectorscope is not available, do not perform adjustment.

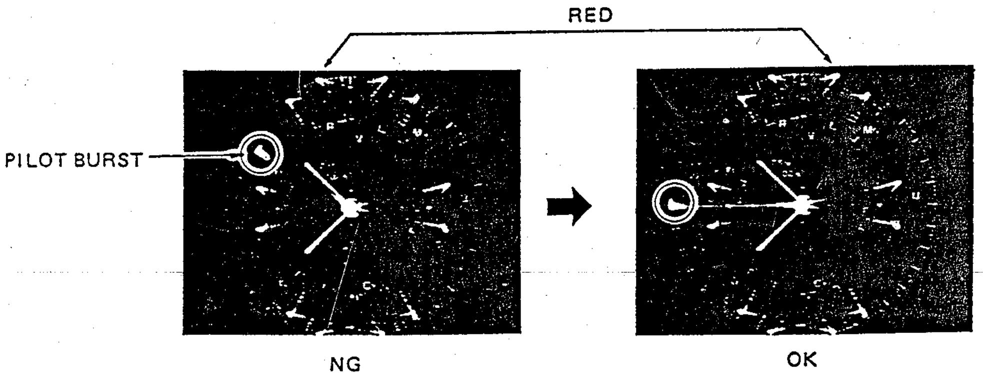
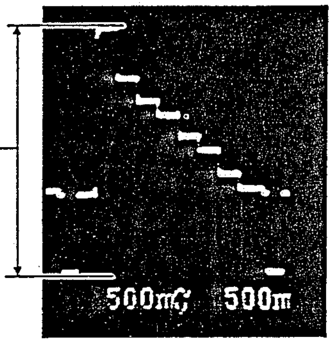
5) Adjust the GAIN knob of a vectorscope so that RED point matches the outer line on the vectorscope.
6) Adjust so that PILOT BURST comes the point shown below.

Note: Some types of vectorscope do not provide visual image of PILOT BURST signal. In such a case, do not perform adjustment.


Vectorscope
(75 Ω terminated)
Rear panel B.B. OUTPUT
EXT SC IN
IN
TP20
VIDEO BOARD
CH1 OUT
Use a 10 : 1 probe.
CH1 IN
Osilloscope

or


Rear panel B.B OUTPUT
EXT SC IN
TP20
VIDEO BOARD
IN
Vectorscope
(75-ohm terminated)
Use a 1 : 1 probe.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure
		Vectorscope (75-ohm terminated)	◎ TP20 [VIDEO -1N] Ⓣ GAIN knob of vectorscope Ⓣ P. PHASE (R289) [VIDEO - 2L] Ⓣ PB LEV (R292) [VIDEO - 1M] ☆ Match the PILOT BURST to the point shown below.	
				
4	Y signal level		◎ PGM Y/C OUTPUT 1 Y signal output (with 75-ohm terminator) [7-pin to BNC conversion connector] Ⓣ 924 Y GAIN (R369) [VIDEO - 2E] ☆ Video level: 0.5 Vp-p	1) Adjust Y signal level. 
5	C signal level		◎ PGM Y/C OUTPUT 1 C signal output (with 75-ohm terminator) [7-pin to BNC conversion connector] Ⓣ C. BAL (R302) [VIDEO - 1N] ☆ Minimum carrier leak Ⓣ 924 LEV (R295) [VIDEO - 1L] ☆ Chroma level (Red level): 0.5 Vp-p	1) Turn VR to minimize carrier leak in blanking period. 2) Adjust burst signal level. After completion of the above steps, reset the connectors J1 and J2 as they were.